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"Dirty Steel" Under the Microscope

Precautions Necessary in Preparing and Judging
Specimens—Rusting, Pitting and Scratches
May Mislead

BY GEORGE F. COMSTOCK*

ENGINEERS are realizing more and more that steel intended for important uses, where serious stresses of various kinds will be encountered, must not be full of non-metallic inclusions if a reasonably long life is desired. It is even being stated in specifications for some of the more troublesome parts of machinery, such as locomotive axles, that the steel may be rejected if found with the microscope to be "dirty."

The recognition of such a cause for rejection of material makes it necessary that the metallographic test for "dirty steel" should be carried out in a skilful and reliable manner. The purchaser of course wishes to be sure that the steel accepted is reasonably clean, but the steel maker must be protected, also, from the results of the incompetent metallographist, who can easily make any good commercial steel look exceptionally dirty to the uninitiated eye.

It is the object of this paper to describe some of the precautions necessary for the proper estimation of the degree of dirtiness or cleanness of steel, and to show how easily various accidental surface appearances on a polished section may be mistaken for evidence of "dirt" embedded in the metal.

In the first place it must be clearly understood that

the term "dirty steel" is of purely relative significance. No attempt to place a definite limit between "clean steel" and "dirty steel" has yet been made. Furthermore, it is safe to say that no ingot of steel was ever

cast, even from the highest grade of crucible product, in which there could not be found some traces of non-metallic inclusions by examination at high magnification.

Steel is properly considered dirty, not just because it contains such inclusions, but only if an abnormal number of them are present. Furthermore, the kind of inclusions present also enters into the question, since a steel intentionally high in sulphur and hence containing numerous sulphides, but practically free from other inclusions, should not be considered dirty in the same sense as a poorly refined steel full of slag or oxidized impurities. It is clear, therefore, that a bare statement to the effect

that a given sample of steel is clean or dirty does not give more than a very indefinite suggestion of the actual condition of the metal.

Selecting Samples: The first step in the determination of the degree of cleanness of a mass of metal is of course the sampling, and much more attention should be given to this matter than it usually receives. The non-metallic inclusions in steel are seldom if ever uniformly distributed so that, to get a proper idea of their

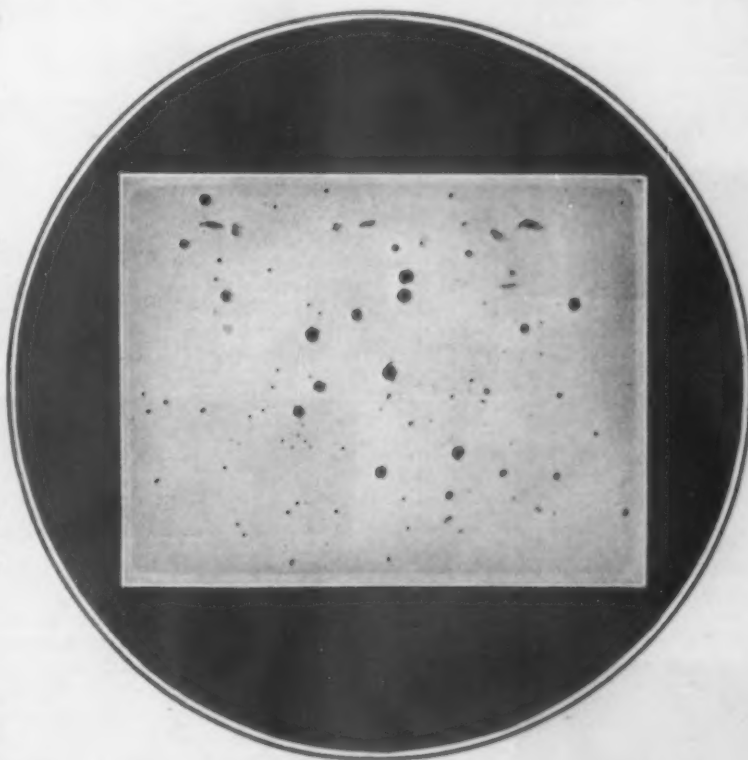


Fig. 1—Fairly Clean Steel with Numerous Pits Due to Rusting, Giving the Appearance of Dirty Metal. All photomicrographs show lengthwise sections of rolled bars of soft steel, unetched and magnified 200 diameters

*Metallurgist, Niagara Falls, N. Y.

size and number in the entire mass to be tested, it is essential that enough of it should be examined to insure that the judgment is not based on either abnormally clean or dirty portions.

A single small sample may be fairly satisfactory for a chemical analysis or even for examination of the microstructure, but it is entirely futile to attempt an accurate estimation of the irregularly distributed inclusions in a heat of steel, or even in a large forging like a locomotive axle, by inspecting merely a single half-inch square specimen as is too often done. Three specimens at least should be used for each examination of this kind, and they should be cut from widely separated locations in the ingot or forging. If the material to be examined has been rolled or forged, these specimens should preferably be cut in a lengthwise direction, as the inclusions are generally more prominent and more easily identified in such sections.

Preparing Specimens: Scarcely less important than the sampling is the method of preparation of the specimens for microscopic examination. Text-books are apt to state that such specimens must have a final polish without scratches or other defects. That is a good

ideal to aspire to, but with most fairly soft metals it is impractical and unnecessary. Leaving a few scratches on a specimen does no harm provided the observer knows what they are. Of course, the scratches on the finished specimen must not be so deep and numerous as to hide the inclusions or interfere with the proper development of the structure by etching. It is much more important, however, for the study of the inclusions or dirtiness of the steel, that there should be no pitting or incipient rustiness of the polished surface. It is impossible to get a proper idea of the inclusions when the specimen is rusty or pitted, and these conditions can be corrected only by grinding away the defective surface and polishing the specimen over again.

Incipient rusting of a polished specimen is a very annoying trouble. It is the result either of not drying the specimen quickly enough after wet polishing, or of polishing too long without enough polishing-powder in the water used. This defect is especially hard to avoid in hot, damp summer weather, particularly with steel rather high in silicon. It may be promoted by the use of a new polishing-cloth, from which some chemical employed in finishing the fabric was not com-

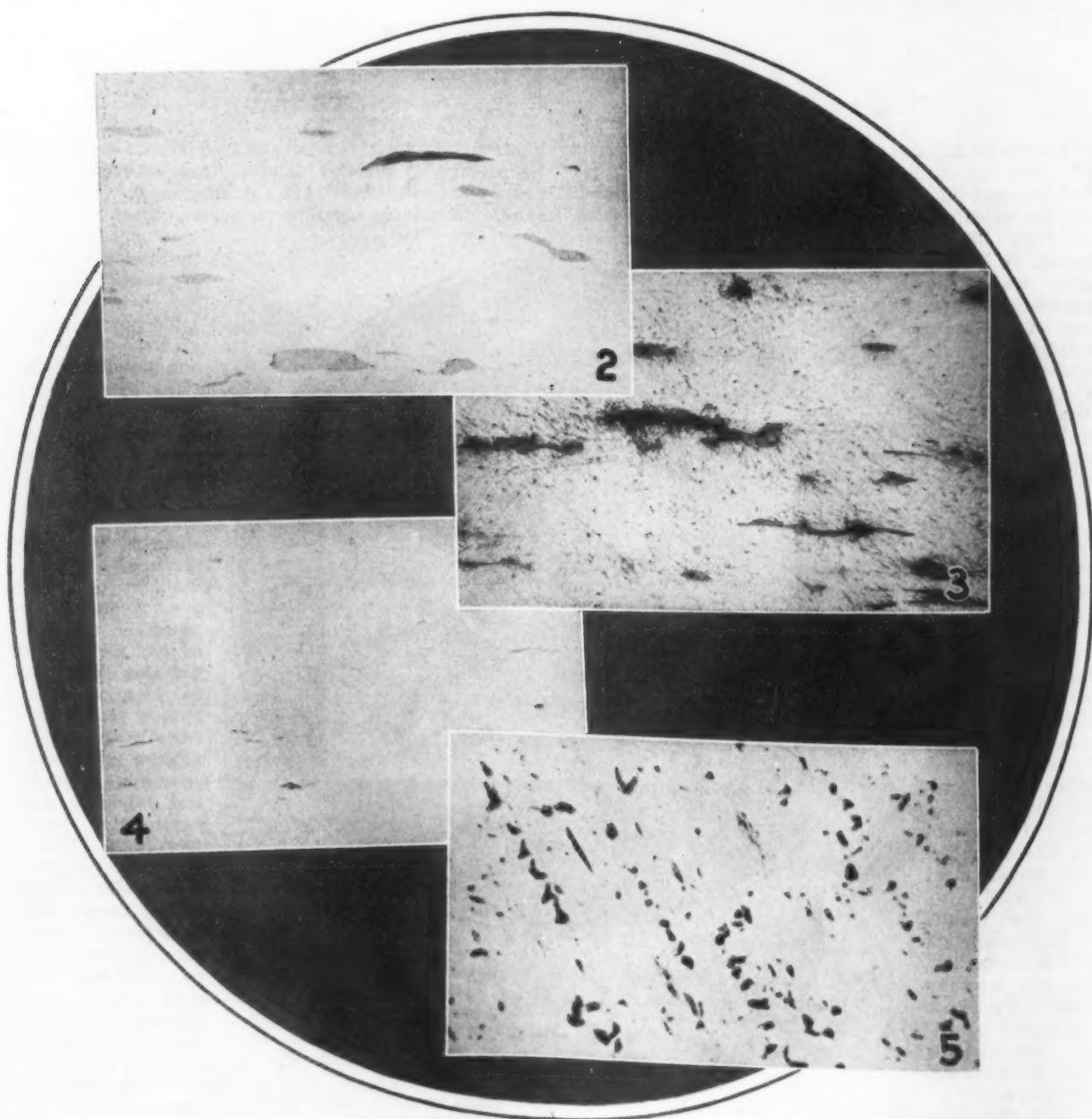


Fig. 2—Segregated Streak, Showing Numerous Gray Sulphide Inclusions, and One Darker Slag Inclusion, Well Polished

Fig. 3—Same Streak as Fig. 2, Badly Polished, with the Inclusions So Pitted as to Make It Impossible to Distinguish the Sulphides From the Slag

Fig. 4—Clean Steel, Showing Very Small Sulphide Inclusions

Fig. 5—Same Steel as Fig. 4, Showing Pits Produced in Polishing, Giving a Very Dirty Appearance

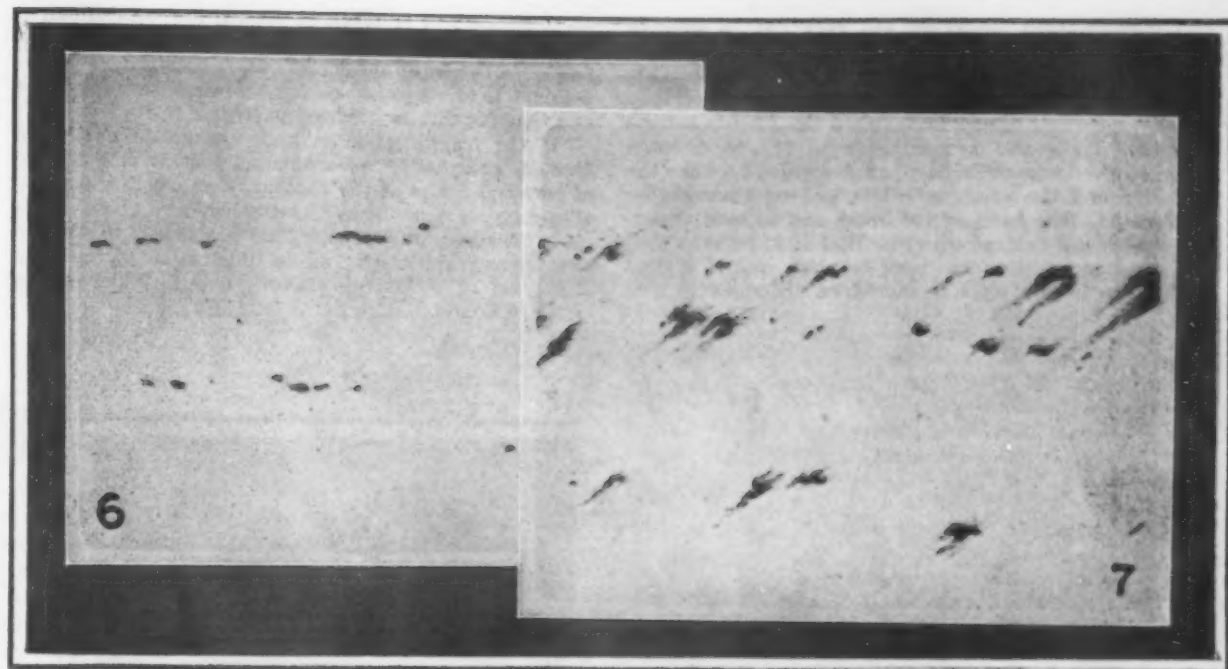


Fig. 6—A Thin Streak of Alumina Inclusions, Well Polished

Fig. 7—Same Streak as Fig. 6, with Inclusions Badly Pitted in Polishing

pletely washed out. It causes black specks to appear all over the polished surface, and especially around the sulphide inclusions. The specks may grow into irregular blotches if the rusting becomes excessive. Extreme care in drying the specimens at once, or as soon as they are taken off the final polishing wheel or the preceding wheel if it also is wet, is necessary to avoid this trouble. Fig. 1 shows the appearance of a badly rusted specimen. It is easily seen how this might be mistaken for dirty steel.

Pitting of Inclusions: Pitting of the inclusions, so that they all look like rough black spots, is a rather common fault in metallographic work. The erosion of the non-metallic particles, leaving holes in the polished surface, usually occurs during a wet grinding or abrasion step in the polishing process. For this reason abrasion with dry emery papers, rather than with emery powder suspended in water, is to be recommended, although it takes more time. Between the finest emery paper and the final polish, however, the writer has found it advisable to use a wet abrasion with a very fine material suspended in water. This step must be made as brief as possible and the cloth used is preferably not fuzzy like broadcloth, but harder and coarser, like canvas or duck. The wheel on which this operation is performed should not revolve too rapidly and must be kept thoroughly wet. With a fast, powerful wheel, a soft fuzzy cloth, heavy pressure, and an abrasive material of a pasty consistency, serious pitting is almost sure to occur.

Even with the greatest care there is apt to be some pitting of hard inclusions, like alumina or titanium nitride, in this step of the process unless the scratches left by the emery papers on the specimen are so fine that the wet abrasion will remove them in a very short time. Sulphide, silicate, and oxide inclusions, however, should never be pitted if the polishing is properly carried out. Unless the specimen is rotated around the wheel during the final polishing, pits may be enlarged or even produced in this operation, and they then take the form of black streaks or "tails" extending in the direction of polishing from each inclusion.

The effects of the pitting of inclusions in a polished section are that all the inclusions, including sulphides which are present in all steel, become indistinguishable and are taken to be dirt, and that their apparent size is much enlarged, so that the specimen appears much dirtier than it should. Figs. 2 and 3 illustrate how bad polishing makes it impossible to identify inclusions, and Figs. 4 and 5 show how a reasonably clean steel containing small sulphides may by pitting be made to

appear very dirty. Figs. 6 and 7 show alumina inclusions, well polished in the former and badly pitted in the latter. It is evident that Fig. 7 does not give a fair idea of the actual degree of dirtiness of this steel.

It should also be noted in this connection that the pits formed in a polished surface may appear larger in relation to the other features of the specimen when it is examined at a low magnification than when highly magnified. This point was brought out clearly by S. Epstein in *Chemical and Metallurgical Engineering* for March 14, 1923, page 482, and is probably due, as he stated, to the optical properties of the lenses and illuminator used and to the slight curvature of the steel surface around the pits. The illuminator used with the lower power lenses causes too much of a shadow to appear where the steel surface is curved close to the inclusions. This effect introduces still another variable in the estimation of the true degree of dirtiness of a steel, especially where there is any trace of pitting. Of course, the pits may be made to appear much worse by throwing them just a trifle out of focus.

Judging Scratches: Returning now to the subject of scratches on a polished specimen, it is important, as was stated above, that the metallographist should realize clearly just what a scratch looks like in all its forms. Fig. 8, for instance, shows two kinds of scratches on the polished surface of a specimen of soft steel. The fine thin lines are, of course, easily recognized as scratches, but it is not so well known that the streaks of dark specks are also a form of surface defect originating entirely in the polishing operation. Such specks might easily be mistaken for small inclusions and, if photographed discreetly, it would not be hard to convince a layman that they represented dirty steel. Fig. 9, however, shows the same spot, identified by the slag inclusions, with all evidence of the scratches and streaks of specks removed by proper polishing, thus proving that the latter did not represent any defect or dirt that was actually present in the metal.

There are still other things beside rust, pits and scratches that may under certain conditions give a false impression of dirtiness to a specimen of normal steel. Grease spots, from the fingers or some other source, are one of these, but generally their appearance is fairly typical so that there should not be much danger of mistaking them for anything else. Specks of dust, rouge, etc., have a bad habit of attaching themselves to a polished surface, even after it is carefully wiped off, and sometimes they are quite difficult to remove. They often look very much like inclusions in the steel,

and inexperienced observers are very apt to mistake them for evidence of dirty steel. Changing the focus slightly during close observation of such specks is a good way of discovering their true character, for they usually come into sharp focus when the steel is a little blurred. It is also a good idea to try to dislodge them with a fine camel's hair brush applied between the objective and the specimen while looking through the microscope. The hairs of the brush can be seen sweeping across the field of view, so that it is certain that the speck in question has been touched, and if it does not belong in the steel it should be dislodged in this

photomicrograph is taken at such a low magnification that a truly representative view of the total number and distribution of the inclusions is obtained, it is impossible to distinguish clearly between the sulphides and the true dirt or oxidized particles.

If the magnification is high enough to allow the kind of inclusion to be recognized, then it is a matter of personal choice of the photographer whether a clean or a dirty spot is shown to represent any given specimen. The best way to solve this problem is to use the photomicrograph merely as an illustration of the type and form of inclusions present, and to report their

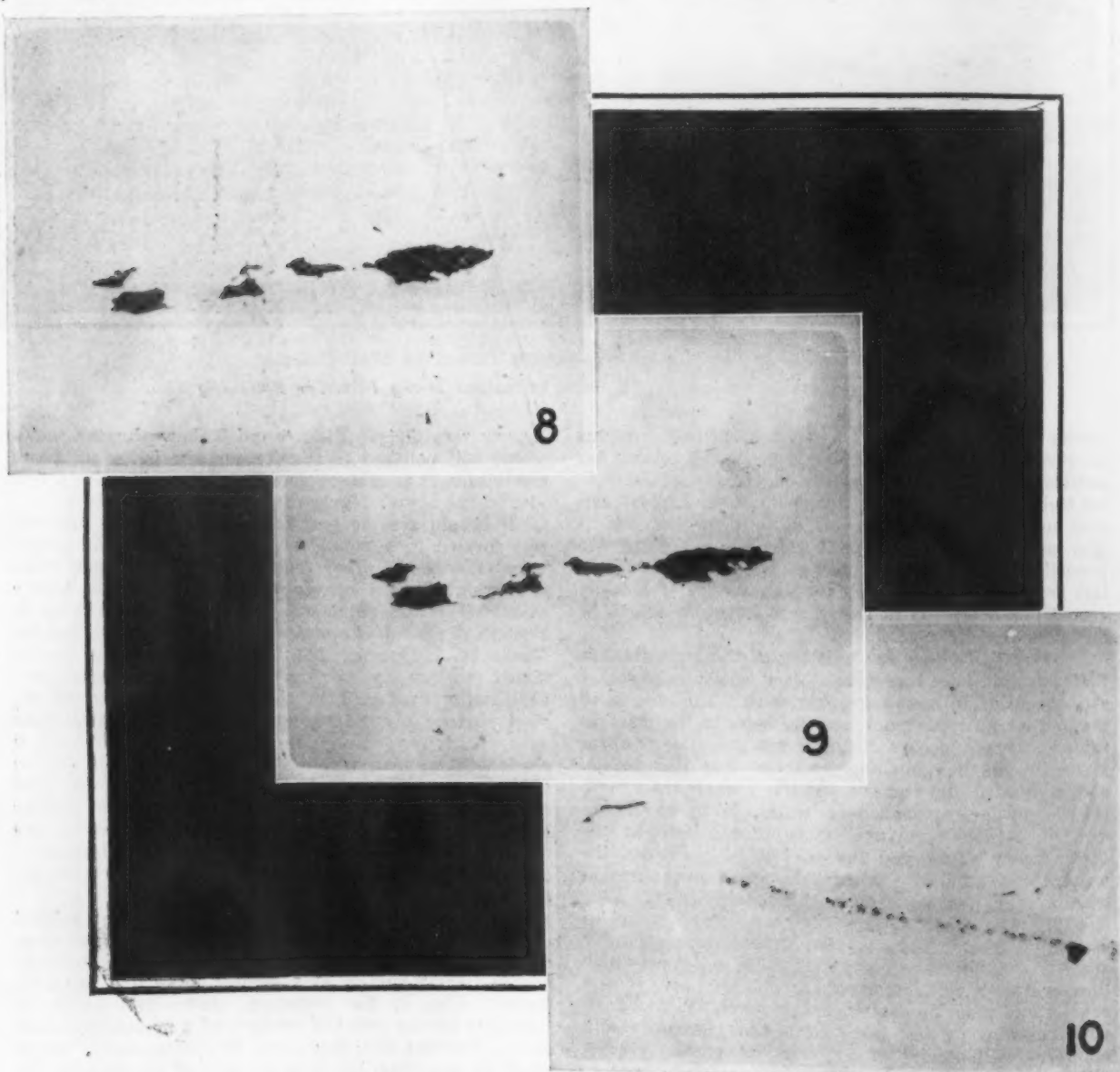


Fig. 8—Slag Inclusions in a Badly Polished Specimen, Showing Scratches in the Form of Lines, and as Rows of Specks Looking Like Fine Inclusions

Fig. 9—Same Slag Inclusions Shown in Fig. 8, Well Polished, with Both the Linear Scratches and the Rows of Specks Eliminated by Proper Polishing

Fig. 10—A Row of Grease Spots on the Surface of an Otherwise Well Prepared Specimen, with a Black Speck of Dust Also Having the Appearance of an Inclusion

way. Fig. 10 illustrates the appearance of grease spots on a polished specimen, and also shows a speck of dust that looks like dirt in the steel.

Other Possible Errors: Up to this point the subject of dirty steel has been considered from the standpoint of the observer who estimates the dirtiness or cleanness of the metal by looking at specimens through the microscope. In such an estimation, of course, all parts of the polished surface should be examined by moving the stage past the objective. Occasionally, however, a photomicrograph will be offered as evidence of dirty or clean steel, and other chances of error beside those discussed above are then introduced. If the

number, or the relative dirtiness of the specimens in question, by a system of grading the entire polished sections on the basis of the slag or oxidized inclusions only. By "grading" is meant calling each specimen in turn "good," "fair," or "poor," etc., or assigning an arbitrary number to each one, according to the amount of slag observed to be present.

Photomicrographs are useful as evidence that such grading was intelligently carried out, with specimens that really showed inclusions and not merely poor polishing. To judge whether a given illustration indi-

(Concluded on page 1244)

War Controversy Taken to Court

Bethlehem Corporation and Government File Suits

Millions Involved in Claims—Charles M. Schwab Attacked and Defended—Ex-Secretary of State Colby Discusses Historic Scene at White House—Edward N. Hurley Pays Tribute to the Steel Manufacturer—President Grace Analyzes Allegations

THE controversy between officials of the United States Government and the Bethlehem Shipbuilding Corporation, which had been pending for several years, culminated in two lawsuits filed last Friday in the Federal courts of New York and Philadelphia. The controversy grew out of differences relating to contracts between the Emergency Fleet Corporation and the Bethlehem companies during the war, and efforts were made to reach a compromise. When these proved unsuccessful, the legal proceedings were instituted simultaneously by agreement of the parties concerned. The Government's case was examined by Attorney General Daugherty and later by Attorney General Stone, but neither ordered any action taken. It is announced that the final proceeding was taken by direction of Attorney General Sargent. The Government's suit, filed in Philadelphia, demands the return of \$15,000,000 from the Bethlehem Steel Corporation, the Bethlehem Shipbuilding Corporation, the Bethlehem Steel Co., the Fore River Shipbuilding Corporation and the Union Iron Works.

It is charged that Mr. Schwab as head of the Fleet Corporation had failed to keep the profits of his own companies down to the cost plus basis adopted for war work—10 per cent plus the cost of construction—while he had forced other shipbuilding companies to comply with this restriction. It also alleged that false representations had been made as to the necessity of using the cost plus system, that the Government had been billed for permanent improvements to the Bethlehem works and that overcharges had been made for wages and bonuses. In addition, the Government's

action asked for an accounting of \$8,000,000 advanced by the Government to finance shipbuilding.

The Bethlehem Suit

The suit filed by the Bethlehem Shipbuilding Corporation against the Government demands judgment for \$9,744,889 on its claims plus interest and the costs and disbursements of the action, which will be large. The total amount, approximately \$10,000,000, is claimed to be due on war contracts, there being 62 separate claims for money. Thirty-three demand money alleged to be owed by the Government under separate contracts, while the other items claim damages on account of "unreasonable" delay by the Government in making audits of the costs under these contracts. The complaint, with contracts and other exhibits attached, makes a document of more than 800 pages, weighing several pounds, and containing about 200,000 words.

Typical of the claims under specific contracts is the first cause of action, which demands \$154,070, which it is claimed is due on the building of three tankers at the Fore River Shipyard. The complaint explains in great detail the reasons for the amount claimed being greater than the amount paid by the Government.

Knowledge of Mr. Schwab—Ignorance of Others

The Government brief declares that at the time of the organization of the Bethlehem Shipbuilding Corporation and at the time of making contracts for building the ships, the defendants "were all thoroughly familiar from practical experience which had extended over a period of many years with the cost of building the

Former Chairman Hurley Tells of Schwab's Great Service—Regrets His Sincerity Is Questioned

COMMENTING on the Government's action against the Bethlehem interests, Edward N. Hurley, former Chairman of the United States Shipping Board, issued the following statement at Chicago:

"Charles M. Schwab entered the services of our Government at a critical period in the World War. If my memory serves me correctly, all of the contracts with the Bethlehem Steel Corporation for ships were made before he was appointed Director General of the Emergency Fleet Corporation.

"I appointed Mr. Schwab Director General with the hearty approval of President Wilson.

"When the appointment was announced it heartened our people and the Allies, at a time when it looked as though the Germans were going to win the war. It had a remarkably depressing effect upon the Germans.

"I am not familiar with all of the details of the Bethlehem Steel Corporation's claim, but I am sorry that our great Government, in presenting its side of the case, should question the sincerity of purpose and the methods of a man who rendered a great service, and whose integrity and honesty are believed in by the American people."

various standard types of steel vessels which had prior thereto been built by said respective corporations at their respective yards, and each of the said shipbuilding corporations then maintained a large, efficient and well equipped organization engaged in the building of steel vessels."

On the other hand, the bill of complaint states, "neither the complainant nor its said agency, the Fleet Corporation, nor the United States Shipping Board, nor any members of the organization of said bodies (except Charles M. Schwab) had any such knowledge or means of acquiring the same."

Assertions as to Improvements

It is also cited by the Government that the Fleet Corporation advanced \$4,832,212 to the Bethlehem Corporation for betterment and improvement of its Ala-

the said defendants of the amount so expended, paid without warrant of law, under a mistake of law."

An offer to compromise this \$4,800,000 for \$1,349,000 was made, but the Government declined and asked the court to make a decision as to what the settlement should be.

Estimates Alleged to Be False

The Bethlehem Shipbuilding Corporation represented to the Government that it was not possible to estimate the actual cost of constructing vessels "similar to those heretofore constructed at the various plants" it operated, and proposed a cost plus contract, with a provision to take care of wage increases. But while the shipbuilding concern submitted estimates, these, the Government says, were knowingly false, in that the Bethlehem Shipbuilding Corporation, Ltd., as hereinbefore set forth, was in a position to know what would be the approximate cost of constructing said

Mr. Schwab's Agreement with the Government

MR. SCHWAB made public a copy of a letter he wrote to the Emergency Fleet Corporation in 1918, in which was contained the understanding under which he took office.

"Those connected with the Shipping Board and the Fleet Corporation," he added, "know that I sedulously observed the arrangement that I would keep hands off relations between the Fleet Corporation and Bethlehem. The charge now made that despite this understanding I should have affirmatively interfered in the relations with Bethlehem speaks for itself."

Mr. Schwab's letter to the Fleet Corporation follows:

April 30, 1918.

To the President and Trustees of the United States Shipping Board Emergency Fleet Corporation.

Dear Sirs: The United States Shipping Board Emergency Fleet Corporation, of which I have been appointed director general, has, or may in the future have, contracts or other business relations not only with the Bethlehem Steel Corporation, of which I am an officer, director and stockholder, but also with certain of its subsidiary companies, in which I am directly or indirectly interested.

I am of the opinion that it would be inadvisable for me to participate, as such director general, in the transaction of any business between the Emergency Fleet Corporation and any of the said companies, with especial reference to the making of contracts with or the giving of orders to such companies, and therefore request that all business between the United States Shipping Board Emergency Fleet Corporation and the companies named below may be handled entirely by such other officers or agents of the Emergency Fleet Corporation as you may designate.

Bethlehem Steel Corporation.
Bethlehem Steel Co.
Bethlehem Steel Bridge Corporation.
Bethlehem Loading Co.
Fore River Shipbuilding Corporation.
The Detrick & Harvey Machine Co.
Bethlehem Steel Products Co.
Ore Steamship Corporation.
Saucon Land and Improvement Co.
Bethlehem Securities Co.
Bethlehem Shipbuilding Corporation, Ltd.
Union Iron Works Co.
Union Iron Works Dry Docks Co.

Yours very truly,

C. M. SCHWAB.

meda, Sparrows Point and Harlan plants and an office building at South Bethlehem, but that contracts in this regard were "improvident, unreasonable and unconscionable in the following respects: The moneys so advanced were in fact expended by the defendant Bethlehem Shipbuilding Corporation, Ltd., for the greater part in making permanent and beneficial improvements in and about the said plants.

"Such improvements included the dredging of channels, the erection of piers and shipways of concrete, and other permanent structures, none of which had or have any salvage value and none of which are capable of removal, so that the terms and provisions in the said contracts contained whereby, under certain circumstances, the complainant was given the right to remove the same are unconscionable and of no benefit whatever to the complainant.

"On the other hand, complainant avers and shows that the said improvements have been and are of great value to the defendant Bethlehem Shipbuilding Corporation, Ltd., and hence to defendant Bethlehem Steel Corporation, and that the same have been, since the completion of the vessels under the contracts herein alleged, and now are in constant use by the defendant Bethlehem Shipbuilding Corporation, Ltd., and Bethlehem Steel Corporation in their private shipbuilding work. With respect to all such expenditures, the amounts of moneys of the United States so advanced constituted a gift to

vessels, and the said amounts stated in said contracts were known by the said representatives of said corporation to be very greatly in excess of any costs which could reasonably be anticipated, based upon the wage scale then in effect and the existing costs of material.

"Complainant avers that said estimates and representations were made for the purpose of enabling the Bethlehem Shipbuilding Corporation, Ltd., to derive excessive, unreasonable and unconscionable profits from said contracts."

Testimony of General Manager of U. S. Shipping Board

Charles Piez, former general manager of the United States Shipping Board, testified before the "Walsh Committee" of the House of Representatives, on Jan. 22, 1921, as follows:

"The Chairman: Now at some time during your incumbency in office Charles M. Schwab was associated as Director General, was he not?"

"Mr. Piez: Yes.

"The Chairman: Can you state just when he came? I just want to fix a few of these dates.

"Mr. Piez: I am not certain, Mr. Chairman, but I think he came about April 5, 1918.

"We felt that we needed some help. . . . We felt that we ought to call on Mr. Schwab for aid in this

emergency, and we asked Mr. Schwab to come down, and we spent one Sunday trying to convince him that he ought to take this position.

"He was very reluctant to do it, because, as he said, he had in the neighborhood of \$500,000,000 of contracts from the Government; that if he met those in the time requirement imposed he thought he was discharging his full duty.

"That because of the connection between his several concerns and the Government he would be naturally the subject of attack later on, and he did not want to undergo the embarrassment of being charged in his official Federal position with favoring concerns in which he was interested and which were doing business with the Fleet Corporation.

"The Chairman: What do you mean by saying 'in matters in which Mr. Schwab was interested'?" . . .

"Mr. Piez: In which his concern was interested. I retired as a member of the board of trustees. Mr. Schwab, of course, was never made a member of the board of trustees. And it was arranged, and the records

will so show, that all transactions between the Emergency Fleet Corporation and any of the companies in which Mr. Schwab was interested should be handled by other members of the Emergency Fleet Corporation than himself. I will read into the record the resolutions on that subject:

Resolved, That all contracts of the United States Shipping Board Emergency Fleet Corporation, after they are approved by the vice-president and secretary, whether for the operating or construction divisions, be submitted to the board of trustees for their approval, and then approved by the officers of the corporation authorized by the board of trustees and formally executed.

"It was finally arranged by resolution of the board that in all matters relating to concerns in which Mr. Schwab was interested, reference should be made for final decision to the board of trustees. That program was followed absolutely. We merely made recommendations. The board of trustees approved of, or took final action on, all contracts relating to concerns in which Mr. Schwab was interested."

Ex-Secretary of State Colby Adds Important Chapter to the History of the Great War

Ex-Secretary of State Bainbridge Colby, who was also a member of the Shipping Board, made the following statement:

"Any one familiar with the facts must experience a feeling of great surprise that this suit should have been thought of, much less instituted.

"I was a member of the United States Shipping Board, at the times referred to in the suit, and among the first to suggest to my associates on the board that Mr. Schwab's help in our work should be secured. I took the matter up very promptly with Mr. Schwab himself and I well recall the weeks spent in earnest discussion with him, in an endeavor to persuade him to put his great energies and abilities at the service of the Government.

"When the United States entered the war every competent shipbuilding firm was loaded up with naval work. They could take no more contracts. The Shipping Board was accordingly faced by the necessity of improvising a great technical industry. We had neither shipyards nor shipbuilders nor plans nor drawings; and that inestimable thing called the "know how," which gives to British and German ship designers and workmen their great strength, was almost entirely lacking. It is to the vast credit of the earnest men who constituted the Shipping Board, and the executive and technical staffs of the Emergency Fleet Corporation that this giant task was so resolutely undertaken and so well carried forward. But the actual delivery of completed ships lagged. We were falling behind our expectations. The submarine destruction was gaining on us.

War Crisis Was Serious

"The serious movement of troops to France was about to begin with the aid of ships belonging to the English. It was apparent that when the casualty lists began to reach home public opinion would become aroused and exacting and that there would be little patience with excuses. It was also fully realized that there is something in American psychology which makes us believe that no emergency can arise for which we do not possess some man of adequate power to meet it. This has often proved true in the past and yet not always. It seemed to me that in view of the critical situation the Shipping Board should call to its service the outstanding man in the country whose name stood for success in large scale production. That man was Charles M. Schwab.

"He was very loath to undertake the work. He felt that his companies were doing all that they could. They were working overtime and at top speed on war work. Mr. Schwab felt that he should not withdraw any part of his energies from the prosecution of the important work already in hand and it required persistent and

earnest effort to persuade him that it was his duty to heed the call of his country and undertake the direction of the vast and vital work of restoring the Allied shipping, which the German submarines were sinking at the rate of 1,000,000 tons per month.

"In our determined effort to bring Mr. Schwab into the work I had finally made an appointment with him to meet President Wilson on a certain day at the White House at 2 o'clock in the afternoon. Up to that time we had failed to be convincing, and I well remember the luncheon I had with Mr. Schwab and his associate, Mr. Grace, at the Hotel Washington, prior to our appointment with the President. Mr. Grace earnestly protested that Mr. Schwab should not take up the work and I quite as earnestly brought forward such counter arguments as occurred to me.

Impressive Interview with President Wilson

"We had reached no agreement and the hour came when we had to keep the appointment with Mr. Wilson. I vividly recall the interview. The President, with whom I had fully discussed the question, and who was entirely in sympathy with the effort to 'requisition' Mr. Schwab, came out of an inner room assuming that the matter was settled and that Mr. Schwab was willing to undertake the work. He put out both his hands to Mr. Schwab and spoke in acknowledgment of his sacrifices and of his patriotism in a way that would have moved any man. It affected Mr. Schwab, and in that instant his doubts and hesitation were gone and he agreed to be drafted.

"With the reaching of a decision, Mr. Schwab threw himself into the work with all the ardor and energy which so remarkably characterize him. He visited the shipyards, traveling from the Atlantic to the Pacific Coast and at once infused a new spirit into the workers, quickened the work in every branch and began to turn out finished tonnage which at that time was the most vital need of the world. There is not a man from top to bottom, who was connected with the shipbuilding phase of our war effort who did not admire him and was not grateful to him for his incomparable aid and leadership.

"During the entire period of his connection with the Fleet Corporation he scrupulously abstained from any participation in any matter affecting his companies, with which the Government was in the least degree concerned. As a matter of fact, the contracts out of which the present suit of the Government grows had all been entered into some time before Mr. Schwab was invited to accept the direction of the Fleet Corporation.

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IMPRESSIONS OF AMERICA

Swedish Metallurgist Relates Some of His Feelings After a Two-Months' Lecture Tour

Dr. Carl Benedicks, director of the Metallographic Institute, Stockholm, Sweden, and one of the leading metallurgists of Europe, has just completed an extended tour of the United States. He sailed for England on the America, Saturday, April 18. Primarily he was invited to deliver the annual Institute of Metals lecture in February, one of the features of the annual winter meeting of the American Institute of Mining and Metallurgical Engineers. An abstract of his address appeared in THE IRON AGE of Feb. 26. Since that time he has delivered eight or nine different lectures before various American universities and several chapters of the American Society for Steel Treating. His last lecture was delivered Friday evening, April 17, before the New York chapter of the American Society for Steel Treating, just prior to his sailing. His subject was the "Nature of High-Speed Steel." It was listened to by a large and attentive audience of metallurgists of the New York district and proved to be highly instructive.

Dr. Benedicks after this meeting consented to give to a representative of THE IRON AGE a brief outline of the impressions obtained during his stay in this country.

"It is with much hesitation," he said, "that I attempt to make a statement of my impressions during my two months sojourn in the United States. The visit was planned and arranged for most ably by W. M. Corse (National Research Council, Washington). An intense feeling of gratitude toward the many persons who have contributed to make this sojourn a most delightful one may be detrimental to a really impartial analysis.

Praise for Research Laboratories

"The strongest impression obtained from a visit to several large industrial laboratories in the United States is that the plant does not take the work of the laboratory merely as a help. In many places it is considered fundamental to the industry which it serves, and I need not say how well founded I discovered this to be. The excellent research work conducted by the General Electric Co., at Schenectady, by the Bell Telephone Laboratories at New York, and by the Union Carbide & Carbon Co., at Long Island City, N. Y., is based on thoroughly scientific procedure, with the results made public, as far as I have been able to learn, in a rather unrestricted way. The publicity feature of these laboratories at least is more extensive than in my own country. I consider this a decided advantage for the industry, enabling it to secure the best brains obtainable which might otherwise go to the universities or into other channels.

"It is natural that in a country known to excel in new and efficient tools the laboratories are equipped in a most effective way. The principal aim in an American laboratory is that efficient equipment should be at hand. Less importance seems generally to be accorded to the general location and arrangement of the laboratories. The difficulty in their operation might be found in their considerable size, which must render quiet research work more difficult than in the smaller laboratories.

"The physical laboratories at the Astronomical Laboratory of the Carnegie Institution at Pasadena, Cal., stand out prominently among my impressions. An excellent laboratory, particularly on new lines, is the Experimental Station of the Bureau of Mines for ore dressing at Minneapolis, to cite only two examples of excellent American laboratories of this character.

The Ford and Other Plants

"The scientific organization of the operations of several large plants which I visited also stands out in my mind. Thus the almost complete perfection of the well known Gillette activities was really amazing. As something unique, the organization of the

Ford plants impressed itself upon me. Their orderly arrangement and cleanliness everywhere are features, the introduction of which into industry is quite remarkable.

"My visit to the works of the American Rolling Mill Co., at Middletown, is one of the most interesting among many. The excellent metallurgical results obtained appear as the triumph of the rational and excellent cooperation of a large number of individuals inspired by the same ideals.

Tribute to American Business Integrity

"In Europe, one often hears the expression 'American Humbug' as signifying an endeavor to obtain an end in an unduly abbreviated way. This conception appears to me to be essentially derived from an earlier period. During the two months of my travels I have, at least, not come into any contact with anything of this character. On the contrary, it has struck me that there exists an uprightness in all general business matters which may be taken as a model by other countries. The belief that a customer is entitled to fair dealing is a conspicuous feature. Just as prominent is the great helpfulness and hospitality one meets everywhere. Sometimes it is almost embarrassing to learn how desirous people are of helping a stranger without the slightest consideration of the time spent.

"The American has a delightful faculty of concealing his criticism, which I presume does exist in spite of not being shown. To a foreigner, there is an excessive heating of hotels and other public buildings amounting to serious discomfort at times. I think that rest at night would be much more restorative if proper temperature control were established. I expected to find automatic temperature control. It is frequently found in industrial furnaces but not in those for ordinary heating!

"In passing let me say that there is no modern country where the art of printing has reached such a high plane and been so skillfully developed as in the United States. A contributing cause may be the deep veneration for the classical art which one encounters so often in your country.

"A Swedish anecdote runs something like this: 'It is horrible how time passes quickly; it is already much more than 400 years since Columbus discovered America.' My first impression is likewise that it is extraordinary how my time in your country has passed quickly. Unfortunately, there is no opportunity for further analysis of other favorable and interesting impressions received as the result of meeting your leading metallurgists and scientists and addressing many scientific societies and university groups."

Seamless Tube Mill in Operation

The seamless tube mill at the Gary Tube Co., plant, Gary, Ind., has commenced operations. It produces drill pipe and casing in sizes ranging from 4 to 12 in. in diameter. The first unit of the Gary tube works to get into production was its No. 4 lapweld mill which made its first pipe on Jan. 8. None of the butt weld mills has yet gotten into operation. The plant at present embraces five butt weld mills, four lapweld mills, and one seamless mill, besides coupling, job, machine and blacksmith shops and a galvanizing plant. Also under construction are a 14-in. continuous skelp mill, a 16-in. continuous skelp mill and a 42-in. universal plate mill.

The March wage disbursement at Youngstown, covering the period from the middle of February to the middle of March, totaled \$6,476,668, representing a decline of \$389,376 from the preceding month and comparing with a distribution of \$7,622,669 in the corresponding month of 1924. The decline is attributed to the fact that February is a short month and to some intermittency in employment. For the first three months this year industries at Youngstown paid \$20,074,882 in wages, comparing with a disbursement of \$21,257,655 the corresponding period in the previous year.

Machine Tool Exports Gaining

Every Year Since 1921 Has Shown Increases, Says
Department of Commerce, and the European
Market Particularly Is Expanding

WASHINGTON, April 22.—American exports of metal-working machinery to all countries amounted to \$14,589,511 in 1924, according to statistics from United States customs returns, representing an increase of over 20 per cent in comparison with 1922 and of approximately 8 per cent over 1923. Although the foreign demand for American machine tools may never again equal that experienced during war years, the increase in this trade since 1921 is highly satisfactory, especially when it is recalled that European competition has been particularly vigorous for the last three years.

Europe Most Important Machine Tool Market

Exports of metal-working machinery from the United States to Europe (except Balkans) last year amounted to \$7,350,146, or slightly more than 50 per cent of the total, and in 1923 to \$4,853,729—representing an increase of 52 per cent in our exports in 1924 over 1923. Practically every country of Europe with the exception of Belgium showed decided increases in machine tool purchases from the United States last year. Exports of this equipment to France nearly

doubled in 1924 and Germany's purchases gained by an amount well over 100 per cent.

Both Spain and Italy also showed an expanding market for American metal-working machinery last year, trade with the former increasing 17 per cent over 1923 and with the latter by nearly 115 per cent. Last year Russia bought metal-working machinery valued at \$227,972 from the United States, as against less than \$3,000 worth in both 1922 and 1923.

South American Trade Gains

Practically every South American country with the exception of Brazil absorbed larger quantities of American machine tools in 1924 than in the preceding year. Trade with South America as a whole in this equipment showed a satisfactory recovery after the slight decline in 1923 in comparison with 1922—metal-working machinery exports amounting to \$940,515 in 1924 against \$852,927 in 1923 and \$857,377 in 1922. Considering the Latin American market as a whole, a decrease in exports amounting to approximately 7 per cent occurred last year, declines in the West Indian and Central American markets more than offsetting the gain made in South America.

Asiatic Market Shows Little Expansion

Asia bought American metal-working machinery valued at \$2,386,220 in 1923 and \$2,589,792 worth in 1924—a gain of less than 1 per cent. Practically every Asiatic market with the exception of Japan, the Philippines and the Dutch East Indies showed declines in American machine tool purchases last year. The gains made in those markets, however, slightly more than offset declines in exports to China and British India. Exports of metal-working machinery to British India declined from \$717,757 in 1923 to \$336,914 in 1924 and to China from \$76,095 in 1923 to \$51,345 last year.

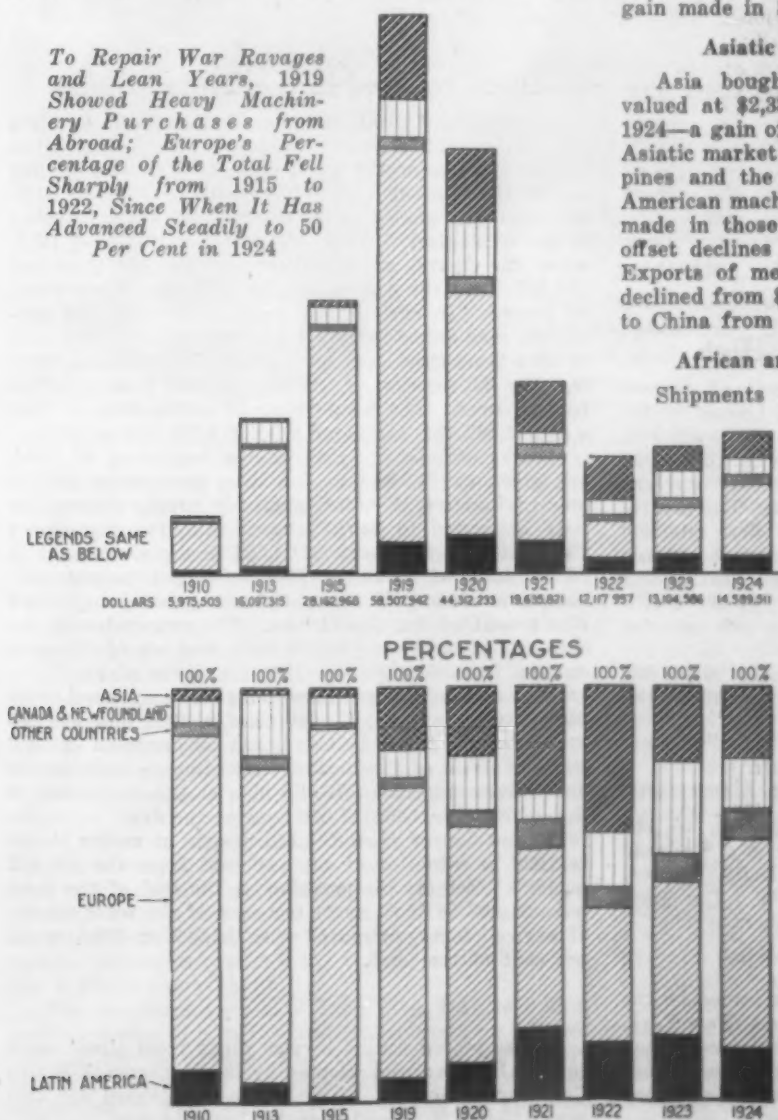
African and Australasian Trade Shows Gains

Shipments of machine tools to Africa from the United States last year amounted to \$247,599 and in 1923 to \$158,982. This gain is obviously due to the increased demand for industrial equipment in British South Africa—the most important market on the continent. Trade with Australasia last year also showed an increase in value of equipment exported, but a decline of about one-half of one per cent in percentage of total metal-working machinery exports last year as compared with 1923.

The first table gives exports of American metal-working machinery to all countries for selected years from 1910 to 1924, arranged by continental groups.

United Kingdom Now Leads as Buyer

Great Britain ranked second as a purchaser of American metal-working machinery in 1922 and 1923. Last year England ranked first, buying \$3,128,208 worth of this equipment. France rose from fourth place in 1923 to second in rank in 1924 with machine tool purchases amounting to \$2,058,521. A feature of last



United States Exports of Metal-Working Machinery
(In Thousands of Dollars)

	1910	1913	1915	1919	1920	1921	1922	1923	1924
Canada, Newfoundland, etc.....	\$336	\$2,328	\$1,814	\$4,041	\$5,830	\$1,226	\$1,635	\$2,965	\$1,768
Europe (except Balkans).....	4,831	12,263	25,127	40,982	25,267	8,569	3,914	4,854	7,350
South America	305	572	165	2,033	1,952	1,764	857	853	941
Mexico and Central America....	126	98	49	421	752	871	506	707	495
West Indies	45	129	107	808	1,364	725	284	433	408
Total Latin America.....	\$476	\$798	\$321	\$3,263	\$4,067	\$3,361	\$1,647	\$1,993	\$1,844
Asia (except Asia Minor).....	156	199	534	8,815	7,427	5,137	4,326	2,386	2,581
Australasia	154	463	304	801	1,090	615	483	726	747
Africa	19	37	42	545	400	400	93	159	248
Other countries	2	9	20	63	230	328	20	22	52
Total, all countries.....	\$5,976	\$16,097	\$28,163	\$58,508	\$44,312	\$19,636	\$12,118	\$13,105	\$14,590

year's trade was the decline in exports of this equipment shipped to Canada—\$1,751,892 worth, a decrease of more than \$1,000,000 as compared with the 1923 figure, when Canada stood first.

The following table gives American exports of metal-working machinery to the twenty-one leading markets of the world:

United States Exports of Metal-Working Machinery				
Destination	Rank 1924	Rank 1923	Rank 1922	
United K'gdom	1 \$3,128,208	2 \$2,451,499	2 \$2,133,440	
France	2 2,058,521	4 1,091,967	5 1,021,942	
Japan	3 1,981,033	3 1,484,618	4 1,469,394	
Canada	4 1,751,892	1 2,956,589	3 1,630,584	
Australia	5 639,749	6 638,618	7 413,542	
Germany	6 545,315	11 209,474	17 77,120	
Mexico	7 352,279	7 585,728	6 446,920	
Cuba	8 345,761	8 382,640	9 236,724	
British India..	9 336,914	5 717,757	1 2,404,384	
Spain	10 324,020	9 280,350	11 228,815	
Italy	11 304,376	15 142,263	15 82,157	
Russia in				
Europe	12 227,972	.. ..	.. ..
British South				
Africa	13 222,765	16 139,353	21 61,234	
Argentina	14 214,889	12 204,321	14 158,090	
Chile	15 213,494	14 187,977	12 200,001	
Netherlands	16 201,532	17 123,859	23 52,562	
Belgium	17 192,488	10 220,680	13 160,221	
Brazil	18 187,082	13 199,889	10 233,891	
Sweden	19 155,492	18 111,591	24 30,832	
Peru	20 119,749	20 79,011	18 73,636	
New Zealand..	21 106,686	19 85,962	20 69,455	
Total, to all countries..	\$14,589,511	\$13,104,586	\$12,117,957	

Portland Cement Output High

During March 11,034,000 bbl. of Portland cement was produced, according to figures of the United States Geological Survey. This compares with 8,255,000 bbl. in February, a seasonal increase, and with 10,370,000 bbl. in March, 1924. The production in the current month was the greatest ever recorded for that month. Correspondingly the production for the first quarter, at 28,145,000 bbl., was the highest for the first quarter of any year, exceeding by 1½ per cent last year's record-breaking total of 27,746,000 bbl. As the active season has begun, high production figures are expected in the next few months.

Stocks at the end of March aggregated 20,444,000 bbl., and represent about two months' shipments at the March rate.

New Sheet Mill of Tennessee Company

BIRMINGHAM, ALA., April 20.—Additions to the new sheet mill of the Tennessee Coal, Iron & Railroad Co. now under construction will materially increase production and cost upward of \$1,000,000. The plant will be finished within the next four to eight weeks.

"Metal Statistics, 1925" has just been issued by the American Metal Market Co., 11 Cliff Street, New York. In addition to the usual tables and statistics contained in previous editions, this one offers several new ones not heretofore published and covers a wider scope than previous editions.

Magnesite in 1924

Magnesite material marketed in the United States in 1924 from domestic mines was equivalent to 100,413 net tons of crude magnesite, valued at \$789,728, a decrease of 32 per cent in quantity and 28 per cent in value as compared with the quantity marketed in 1923. The State of Washington in 1924 produced 52,876 tons, which was more than half the total output for the year, according to the Geological Survey.

Magnesite (Expressed as Crude) Supply in the United States, 1919-24, in Net Tons

	Domestic Production	Imports	Total	Proportion of Consumption Supplied by	
				Domestic	Foreign
1919.....	156,226	25,321	181,547	86	14
1920.....	303,767	63,110	366,877	83	17
1921.....	47,904	65,569	113,473	43	58
1922.....	55,790	217,861	273,651	26	74
1923.....	147,250	151,092	298,342	49	51
1924.....	100,413	129,576	229,989	44	56

Zinc Produced in the United States

In 1924 the United States produced almost as much zinc as in 1921 and 1922 combined, the figures being 517,339 net tons in the latest year, 354,277 tons in 1922 and 200,500 tons in 1921. The figure for 1923 at 510,434 tons was almost equal to that of 1924, according to the Geological Survey. Except for 1916 and 1917, when the figures were respectively 564,338 tons and 584,597 tons, the production in 1924 was the highest on record. In each of the years mentioned the production was almost wholly from domestic ores, the total in 1924 from these ores having been 515,831 tons, leaving only 0.3 per cent of the total derived from smelting foreign ores. The total value of production in 1924 was \$71,867,000, compared with \$74,782,000 in 1923.

Stocks of primary zinc, at the beginning of 1924, are given as 27,888 tons. Adding production and 25 tons of imports, the total available supply during the year amounted to 545,252 tons. Exports aggregated 76,241 tons, while stocks of 20,754 tons made a total of 96,995 tons withdrawn. This left an apparent consumption of 448,257 tons. Of the production, rolled zinc accounted for 61,032 tons. The remainder of the domestic production, 454,799 tons, and all of the production from foreign ore, 1508 tons, was slabs.

The consumption figure may be compared with 446,514 tons in 1923, 373,090 tons in 1922 and 203,600 tons in 1921. It will be noted that consumption in 1922 was far ahead of production, stocks having been drawn down from more than 70,000 tons at the beginning of the year to less than 17,000 tons at the end.

Retort figures show 134,160 retorts at active plants in 1924, a reduction of 4½ per cent from the 140,352 in 1923. Retorts in operation at the end of the year were 81,400 in 1924, or 61 per cent of the total retorts at active plants, compared with 86,700 in 1923, or 62 per cent of the total.

Brass piping for its service pipes from street main to curb line has been adopted by the Hackensack Water Co., Hackensack, N. J., which has purchased for this year 125,000 ft. Semi-annealed brass is used.

VERTICAL CHUCKING UNIT

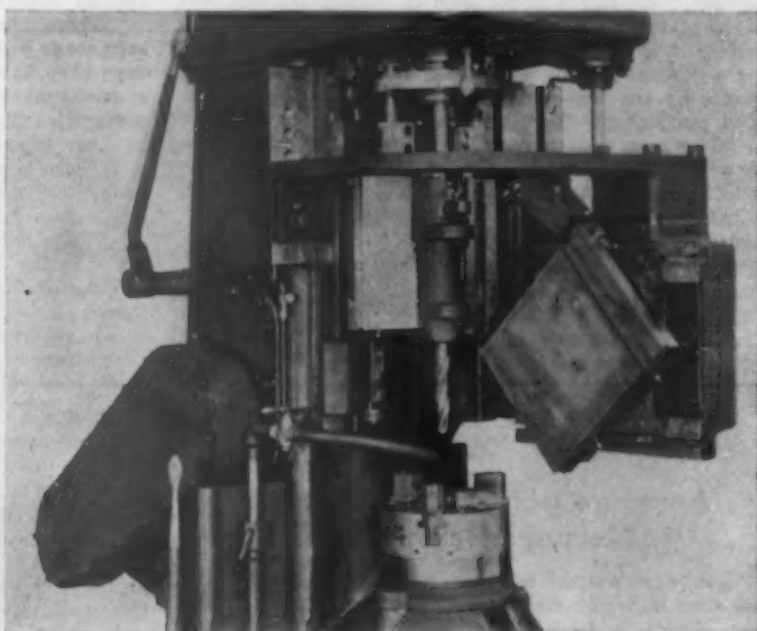
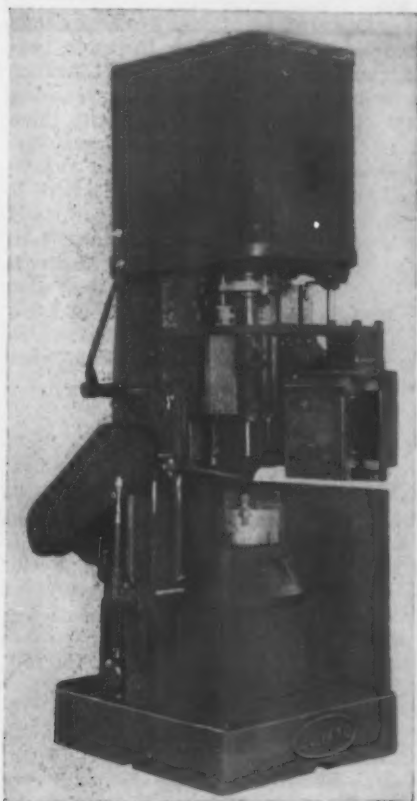
Automatic for Work Requiring One Chucking or Series of Single or Group Operations

The single-spindle vertical automatic chucking machine known as the Vert-Au-Matic, placed on the market recently by the Bullard Machine Tool Co., Bridgeport, and on view at the exhibition being held in the sales room of the Motch & Merryweather Machinery Co., Pittsburgh, this week, is here illustrated.

The machine is similar to the Bullard company's four and six-spindle Multi-Au-Matic, being in fact one unit of that machine without the coordinating control and indexing features, which in a single-spindle unit are unnecessary. The machine illustrated is the 8-in.

capable of 4-in. vertical, horizontal and angular tool feed, and within it is the actuating mechanism which provides rates of feed in direct relation to the main head feed. The feed ratio is determined by change gears in the bracket, these gears being accessible from the rear of the head. This arrangement is stressed as bringing into operation two independent heads in combination with a drill head when required.

The power chucking device employed is also a feature, this having been applied to the work spindle of previous machines of the company for mechanically actuating chuck jaws or holding fixtures. The jaws of the chuck are closed or released by power by simply throwing a lever, the time required for the operation being 2 sec. The device provides a positive grip which is mechanically maintained and is part of the machine itself. Adjustment is provided for jaw tension.



Single-Spindle Vertical Automatic Chucking Machine with Supplementary Side Head and Power Chucking Device. A close-up of the heads and chuck is shown above

model, the capacity of which is for pieces up to 12 in. in diameter and 6 in. in height. A 12 in. and a 16 in. model will be brought out later.

The work spindle is of standard design with a self-centering conical thrust bearing under the spindle head and two cylindrical bearings of large diameter and proportionate length to absorb side strain. The spindle drive is taken by shaft and spur gears from the standard Multi-Au-Matic feed works in the head of the machine, and by means of change gears 23 different spindle speeds ranging from 33 to 300 r.p.m. may be obtained. The feed works also provide for 23 feed changes ranging for the main head from 0.0067 to 0.06 in. per revolution of the spindle. The main tool head, which is similar to the plain head of the Multi-Au-Matic except in length of stroke, has been designed for vertical motion only. The maximum travel of the tool head is 9 in., which by limiting the capacity of the machine to work 6 in. high, allows 3 in. clearance for chucking. This head may be equipped with a drill spindle having a capacity up to 1½ in. in diameter, No. 3 Morse taper shank.

The supplementary side head is a feature. This device consists of a heavy bracket secured to a scraped bearing on the column and vertically adjustable in height to permit of its application to any required operations on work within the capacity of the machine. On this bracket there is mounted a swivel and tool slide

In operating the machine, a rough piece is placed in the chuck and the chuck lever is thrown. Then by tripping the clutch lever, power is applied to the spindle, and the tool heads advance rapidly to the point of cutting, are fed through the cut, then rapidly returned and the clutch disengaged automatically. One operator may attend as many machines as the time of the automatic cycle will permit. When the machines are placed in battery side by side, the operating space required from spindle to spindle is less than 4 ft. The projected floor space is 45 in. wide by 50 in., front to rear, and the height of the machine is 102 in.

The machine is lubricated from an oil reservoir in the base, the pump being driven continuously from the constant-speed main shaft. Oil is pumped to the top of the machine, passing through a filter, and from the top it feeds by gravity to all inclosed operating units, supplying clean oil to all gears and bearings. Although the machine may be driven from a countershaft or constant speed motor by belt, the standard construction provides for individual motor drive with chain connection to the main shaft. A 5-hp. 1200-r.p.m. constant-speed motor is in most cases recommended. A pad provided on the back of the column is adaptable to the types of motors available. Allowance should be made in floor space for overhang of the motor, which varies with the type. A power switch may be mounted on the left of the column, within easy reach of the operator.

FOUNDRY COST SAVING

Mechanical Handling Discussed by Speaker at Philadelphia Foundrymen's Meeting

The savings to be effected in the handling of materials in a foundry by means of mechanical conveyors was the subject discussed at the April meeting of the Philadelphia Foundrymen's Association by R. J. Heisserman, foundry sales engineer of the Nicetown, Philadelphia, plant of the Link-Belt Co. Mr. Heisserman illustrated his talk by lantern slides.

He said that the first system of mechanical handling of molds and sands was installed about 35 years ago and the system is practically unchanged today, except that there have been improvements in the designs of individual parts of the equipment.

"There is hardly a foundry doing repetitive work," he said, "but might profit both in production and lessened plant cost by adopting a continuous production system in greater or less degree. Many foundries doing a general jobbing business could also increase their profits by the use of machinery that has been developed particularly for foundry use.

"The most satisfactory way for a foundryman to convince himself of the value of mechanical equipment is to inspect an actual installation and if possible talk to the user of it. In this way he gets a practical demonstration and sees the application of machinery to some of the problems with which he is coping.

Immense Amount of Handling

"If a foundryman who hasn't already done so will figure up the total number of handlings of material it takes, or the total weight of material actually moved,

to make one pound of castings he will be astonished. In an iron foundry, for example, there is the pig iron, coke and limestone handled many times even before molten iron reaches the pouring ladle. Then there is the molding sand, the core sand, flasks, patterns, cores, bottom boards, gaggers, etc. Next the hot iron, the rough casting, sprues, castings to the tumbler, the sand to be shaken out and reconditioned, and the flasks and patterns to be returned to follow the same cycle over again. It runs into a surprising tonnage. In fact, counting up the various handlings, it has been found that at least 60 tons of material are handled to produce 1 ton of castings in the average shop.

"Most practical men in the foundry are so close to all this that they do not realize how much work it really takes to make a casting. Someone with a fresh viewpoint who is accustomed to having materials mechanically handled can often see that many of the usual foundry operations may profitably be changed from manual labor to machine.

"There is no denying that great improvements have been made in foundries in the last 10 or 15 years; perhaps they have advanced more than any other branch of metal manufacturing. So many foundries are being modernized that the others have to keep step with them in some measure if they are to compete successfully.

"There is no argument as to the wisdom of substituting mechanical handling for manual labor where it will show a saving. If a machine will pay for itself in savings it is a good investment. A mechanical conveyor is far better than a shovel and a wheelbarrow for moving large quantities of sand. It is evident also that a molder's conditions will be improved and his wages increased by permitting him to do that which best exercises his skill and least requires of him what a machine will accomplish."

American Iron and Steel Institute Meetings Next Month

The next annual business meeting of members of the American Iron and Steel Institute will be held Monday, May 4, at noon at the offices of the institute, 40 Rector Street, New York, to elect directors and to transact other business.

The general meeting of the institute, at which President Gary will deliver an address, to be followed by the reading of papers and in the evening by a banquet, will be held on Friday, May 22.

Sheet Steel Executives Annual Meeting at White Sulphur Springs

The preliminary program has been issued for the third annual meeting of the Sheet Steel Executives, which like the two other meetings, will be held at Hotel Greenbrier, White Sulphur Spring, W. Va., May 4 to 7 inclusive. The meeting will open with a fellowship dinner on Monday evening, May 4, and the three following days will be devoted to business sessions in the forenoons and recreation in the afternoons, a golf tournament being a feature.

The following addresses will be delivered during the convention: "The Sheet Steel Industry," W. S. Horner, president National Association Sheet and Tin Plate Manufacturers, Pittsburgh; "Is the Industrial Manager the Victim of Price Movements or Can He Control Them?" Magnus W. Alexander, president National Industrial Conference Board, New York; "Executives Responsibility to Stockholders and the Public," Severn P. Ker, president Sharon Steel Hoop Co., Sharon, Pa.; "Distribution Problems, the Value and Effort of Educational Work Within the Sheet Steel Industry," Frank A. Weidman, special representative Inland Steel Co., Chicago; "Whither Are We Drifting?" Murray Springer, general director, operating branch, Sheet Steel Trade Extension Committee, Chicago; "Wasters and Seconds, Their Effect on the In-

dustry," M. C. Summers, president Thomas Sheet Steel Co., Niles, Ohio; "Member Companies' Cooperation with the Trade Extension Program—A study of Definite Methods by which Manufacturers Can Gain From, and Aid in this Work," J. J. Rockwell, vice-president Crosby-Chicago, Chicago; "Sheet Steel Simplification—A Brief Review of the Work, and What Has Been Accomplished During the Past Year," Walter C. Carroll, vice-president Inland Steel Co., Chicago; "Trade Extension Retrospective and Perspective," Clayton Patterson, secretary Trade Extension Committee, National Association Sheet and Tin Plate Manufacturers, Pittsburgh; "The Radical Situation in the United States Today and What the Executive Can Do to Prevent the Spreading of Radical Ideas," Jacob Spolansky, former chief, Military Intelligence Branch, Chicago.

Annual Meeting of Chamber of Commerce of the United States

At the thirteenth annual meeting of the United States Chamber of Commerce, which will be held in Washington, May 20 to 22, a large feature will be the formal dedication of the new headquarters building.

Questions for discussion at the meeting are international as well as domestic. Commercial treaties, including that with Turkey and suggested complete revision of others, will be discussed. The European situation and the future of the Dawes plan will be presented. Competition in foreign trade is another subject.

Secretary of Agriculture Jardine will present the agricultural situation, which will be taken up in a group session. The American merchant marine and the relation of Congress to American business will be given considerable attention.

Much of the discussion at the annual meeting will take place in group sessions. The eight groups are natural resources production, transportation and communication, finance, insurance, manufacture, distribution, foreign trade and civic development.

NEW ROTARY COMPRESSOR

Usual Inlet and Outlet Valves Eliminated—
Outlet Ports Function as Check Valve

Compactness and simplicity of construction are outstanding features of the rotary compressor illustrated herewith, which is intended for use in pumping fluids or compressing air. The machine is devoid of the ordinary inlet and outlet valves, and an uncommon feature is the arrangement of the outlet ports which function as a check valve when they do not register or when the fluid or air is not being discharged from the machine. Quiet operation is claimed, and the proper balance of the parts of the machine is said to result in a minimum of vibration even at high rotative speeds. For many purposes the machine may be used without an air receiver. It is generally motor-driven, and unloading devices are unnecessary. The absence of flywheels, pulleys, crankshafts, etc., is also unusual. The

one machine there is a cavity in which water or other cooling medium is circulated through the pipe shown at *K* and *L*. The shaft of the driving motor enters the bore of piston *B* and is keyed to it. The capacity of the machine is rated as ranging from $\frac{1}{4}$ cu. ft. to 10,000 cu. ft., and for operation at speeds from 350 to 3600 r.p.m. for various pressures.

The assembled machine with cover removed is shown in Fig. 2. In operation, the rotation of the eccentric piston *B* produces motion of a combined rotary and reciprocating nature, of the ring *C*. As the eccentric throws the ring to its maximum position off center, the ring presents the maximum opening between its periphery and the cylinder wall on the right-hand side of the sliding partition. On this side of the partition the cylinder wall carries the intake port *G*. When the rotation continues the throw of the eccentric carries the ring around in such a manner as gradually to move the widest opening between the ring periphery and the cylinder wall clockwise, until the air or liquid is compressed against the other side of the sliding partition

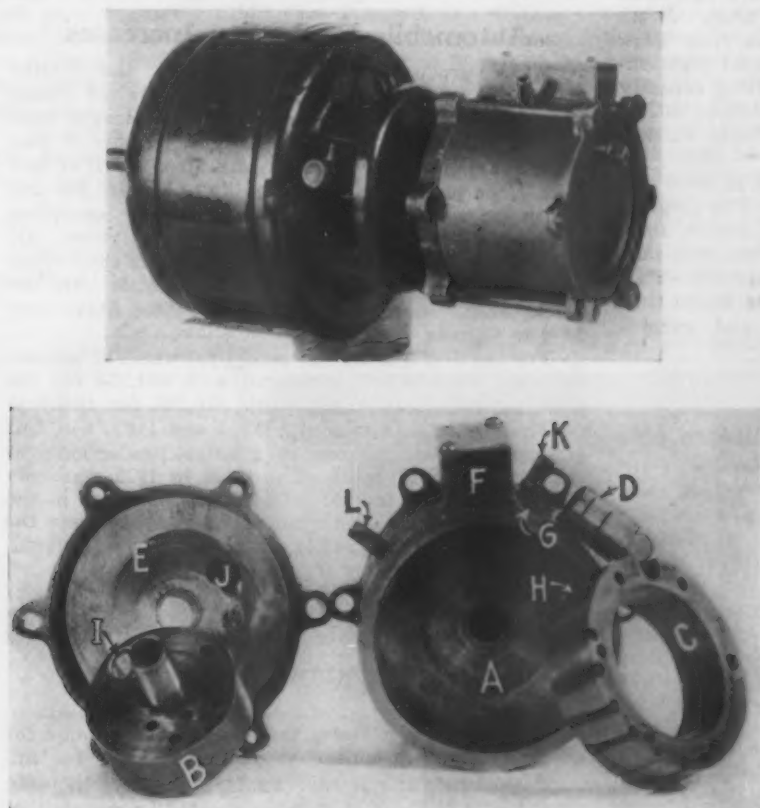


Fig. 1 (at the left)—Disassembled View Showing Component Parts of the Rotary Compressor

Fig. 2 (above)—Assembled Machine with Cylinder Cover Removed

Fig. 3 (upper left)—Compressor Mounted Directly on Motor Shaft

rotors, being located within the casing, function with the casing as suction and discharge valves.

The arrangement and component parts of the machine, which has been developed by John Milne, 273 Greenwich Street, New York, may be noted from the accompanying illustrations. The machine as presented comprises a cylinder divided into two equal parts by a hollow partition, one face of which is shown at *A*, Fig. 1, thereby forming two separate compression chambers. In each of these chambers there is a compressor which is made up of an eccentric or piston *B*, a ring *C* and the sliding partition *D*. The chambers are inclosed between covers *E E*. These compressors are arranged to balance each other, and one may act independently of the other, one being used for compression purposes and the other for producing a vacuum. The compressed air or fluid from one chamber may be stepped up in the other to any pressure within the limits of compressor practice. One of these double compressors may be mounted on each end of the shaft of one motor, and thus four machines would be compressing at 90 deg. apart. The four units may also be arranged to perform separate functions if desired, two used for air and two for fluid, etc.

In the partition dividing the two chambers of the

D at which time the port in the eccentric registers with the port in the ring, giving clear outlet to the compressed air or fluid.

The sliding partition has a three-quarter cylindrical bearing in the edge of the ring. As the ring is moved it oscillates in this cylindrical type bearing or hinge and also in its change of position it slides the partition up and down in ways located in the boss *F* on the top of the cylinder. Thus there is always a sealed division between the intake and outlet ports. The numerous small holes shown on the face of the piston and ring are intended to reduce the weight of those parts, but in the present model these holes have been dispensed with. The outlet ports *H* in the ring, *I* in the piston and *J* in the cover register with each other at a predetermined point in each revolution of the piston and ring, and the compressed air or fluid is discharged through these aligned or coacting ports at that predetermined point into the outlet in the cover.

The sliding partition *D* serves only to seal the outlet compartment from the inlet portion of the cylinder. When the outlet ports in the piston ring, piston and cover are not in line, they function as a check valve for the air or fluid in the cylinder and the air or fluid in the outlet piping.

Sale of Pardee Steel Corporation

The entire plant of the Pardee Steel Corporation, Perth Amboy, N. J., was sold April 18 to the Columbia Salvage Corporation, 233 Broadway, New York. It has not yet been decided by the purchaser what disposition will be made of the plant and equipment.

Included in the plant are four small basic open-hearth furnaces, two of 30 tons and two of 50 tons; a 34-in. 2-high reversing blooming mill; a 20-in. 3-high billet mill; a 14-in. 3-high roughing mill; a 12-in. 3-high finishing mill of five stands and a 9-in. 3-high finishing mill of five stands. To serve the blooming mill are 10 single-hole soaking pits. The finishing mills are supplied with steel heated in four furnaces, one of which is continuous, while the other three have four doors each. There are two shafting plants producing turned and polished, as well as cold-drawn, shafting and finished shapes in squares, hexagons and flats.

The products have consisted of steel ingots, blooms, billets and slabs and merchant bars, as well as the cold finished steel. A specialty in recent years has been concrete bars, delivered by automobile truck direct from the works to building operations in New York City and Northern New Jersey. The annual ingot capacity was estimated at 75,000 tons. Rolling capacity was given as 120,000 tons of blooms and billets, 60,000 tons of merchant bars and 60,000 tons of cold finished steel.

The works at Perth Amboy were built in 1900 and first operated in December of that year. The original company was incorporated in New Jersey, Jan. 8, 1895, as the C. Pardee Works, Inc. The business was purchased by Pittsburgh interests, who organized the Pardee Steel Corporation April 13, 1920, since which time George G. Bell has been vice-president and general manager, in charge of all operations.

Commercial Steel Castings

Bookings of steel castings in March are reported by the Department of Commerce at 59,508 net tons, or 59.3 per cent of capacity. This is the smallest amount since last August. It compares with 61,535 tons in February and with 100,514 tons in March, 1924.

Included in the present total are 21,670 tons of railroad specialties and 37,838 tons of miscellaneous castings. This is a reversal of the tendency of a year ago, when railroad specialties predominated, with 59,778 tons against 40,736 tons of miscellaneous castings. The figures are from 68 identical companies, with a monthly capacity of 100,400 tons in 1924, of which 43,000 tons are devoted usually to railroad specialties and 57,400 tons to miscellaneous castings.

New High Record in Production of By-Product Coke

WASHINGTON, April 21.—Establishing a new high record of monthly output, production of by-product coke in March totaled 3,468,000 net tons against 3,411,000 tons in January, the previous maximum record, according to the Geological Survey. The nearest approach to this figure in earlier years was in May, 1923, when 3,328,000 tons were produced. The plants were operated at 89.3 per cent of capacity. Of the 75 plants, 68 were active and seven were idle. Beehive coke, on the contrary, declined appreciably. As against 1,054,000 tons in February, the total for March was 1,006,000 tons, despite the greater number of days in the latter month. The Geological Survey says that the decreasing importance of beehive coke is shown by the fact that of the total coke made in March 77.5 per cent came from by-product ovens and but 22.5 per cent from beehive ovens, whereas in 1923, the percentages were 66 and 34, respectively.

To produce the coke made in March required the consumption of about 6,570,000 tons of coal, of which 4,983,000 tons was consumed in by-product ovens and

1,587,000 in beehive ovens. The present rate of consumption of coal in coke ovens is thus in excess of 65,000,000 tons a year.

Of the by-product coke made in March, 2,905,000 tons came from plants associated with iron furnaces, and 563,000 from merchant or other non-furnace plants. The proportion contributed by the furnace plants was thus 83.8 per cent, or slightly more than in February.

Midland Steel Products Co. Replies

WASHINGTON, April 21.—Replying to charges in the complaint of the Federal Trade Commission, denial is made in an answer filed by the Midland Steel Products Co., Cleveland, that it is restraining in interstate trade the sale and distribution of automotive frames and parts in certain sections of the country. The complaint was issued on the strength of the acquisition by the respondent of the properties and assets of the Parish & Bingham Corporation, and of the Detroit Pressed Steel Co.

Automobile Production Increases

March production of automobiles in the United States and Canada is reported by the United States Department of Commerce at 332,108 passenger cars and 45,012 trucks. This is the largest number of passenger cars produced in any month since April of last year. The production of trucks is the largest for any month since May, 1923, and with that sole exception the largest for any month in the last five years. Of the passenger cars 319,094 were produced in the United States and 13,014 or 4 per cent in Canada. Of the trucks 42,923 were produced in the United States and 2089 in Canada.

For the first quarter the total production of passenger cars was 797,802, compared with 994,274 for the first quarter of 1924, and with 816,239 for the first quarter of 1923. Except for 1924 and 1923, the first quarter of this year shows the greatest production ever recorded in that period. The total in 1922 was only 354,807 cars. Of trucks, 107,445 were produced in the first quarter of 1925, a gain of 7.4 per cent over the 100,021 in 1924. In 1923 the total was 80,600; in 1922, only 44,572.

Some Favorable Indications in the Youngstown District

YOUNGSTOWN, April 21.—One of the leading executives of the district states there is current demand for about 75 per cent of the producing capacity for finished steel products in this country. He says the only danger is in the lack of stability created by competition for full-capacity business and the acceptance of tonnage at prices which entail a loss.

Steel producers generally see in the low stocks in hands of manufacturing consumers one of the most hopeful aspects of the present situation. Most of the current ordering by consumers involves small tonnages required for early delivery. Within the past two weeks, an appreciably better tone has developed in the character of steel demand from the automobile industry, although there is very little forward buying from this source.

Indicating paucity of buying of common sheets is the difficulty some makers in the district have recently experience in making up schedules for a week in advance, as is the custom.

Domestic sales of oak leather belting, reported by the Leather Belting Exchange for March, amounted to 429,404 lb., valued at \$728,699, or an average of \$1.70 per lb. This is very close to the figures for March, 1924, when the total was 434,494 lb., valued at \$738,641, or an average of \$1.70 also. The latest month shows a considerable improvement over February, which had a total of 360,984 lb., and \$609,703, or an average of \$1.69 per lb.

Sand Handling in Cadillac Foundry

Monorails Used Extensively, with 3-Car "Trains"
—Aluminum and Brass Sections Use Oil-Fired
and Electric Furnaces Respectively

BY FRED L. PRENTISS

TWO independent systems of sand preparation and distribution, one for coarse sand and one for fine sand, are provided in the iron foundry, there being duplicate mixing units at either end of the plant under the roof. The shake-out sand passes through the grating to belt conveyors, which deliver it to a main belt conveyor having a magnetic pulley for removing gagers, spikes and other metal. It is then elevated and goes through a riddle that dumps it into a screw type mixer for tempering; from this it is delivered to a Rapp revivifier. From the latter it is fed to a belt conveyor that empties into several storage bins with an aggregate capacity of 80 tons.

Sand for the cylinder molding floor is delivered to the hoppers above the machines on a belt conveyor from the storage bins of one unit.

Monorail System for Conveying Sand

The arrangement of the foundry floors and molding machines made it impractical, except in the cylinder

The monorail is 19 ft. above the floor, being suspended directly over the center of a balcony 13 ft. high located over every row of molding machines. Above each machine is an opening in the floor of the balcony, connecting to a hopper holding about 2000 lb. of sand for supplying the machine. The operator of the monorail conveyor first loads both of the conveyor buckets from the sand storage bins through a hopper with manually operated gates, taking the sand from either the coarse or fine sand unit. He then mounts his platform, which is 6 in. above the floor of the balcony, and from this position is able to operate the switches that will place his train in proper position over the hoppers of the molding machines. When it arrives at a molder's hopper he discharges the sand from the tramrail bucket, by turning a hand wheel on each bucket, without leaving his seat. Similar tramrail equipment is used in the core-making department.

Various advantages, including its flexibility, are claimed for the tramrail system. As large production,



In the Aluminum Foundry,
Showing Some
of the Melting
Furnaces

unit, to use belt or bucket conveyor sand handling equipment, because the number of curves and the number of branches from the main line would have necessitated a very complicated system. Consequently the engineers, called upon to provide a practical solution of a difficult sand handling problem, adopted a monorail system. This consists of special rail and switches furnished by the Cleveland Crane & Engineering Co., the carrier unit consisting of a train of standard carriers hooked together and operated by one man. Buckets with hopper bottoms, having a capacity of 1800 lb. each, are suspended from the first and third carriers. On the second carrier is the platform for the operator and on which the electric control for the forward and backward motion of the train is located. The monorail conveyor, operating at a speed of 600 ft. per min., has a capacity for delivering 480 tons of sand per day to the molders' benches.

it is stated, can be obtained on a given floor space as with the use of a belt system for conveying sand. Sand can be delivered to just where it is wanted, in only the quantities wanted, and to only the floors that are in use if the foundry is not being fully operated. It is also found convenient in handling sand of different tempers to different units, so that the molder can be supplied with sand having the temper required. It is also found of particular advantage in the aluminum foundry, where different grades of sand are used, and the different units can be supplied with the required grades. With two buckets, sand of two grades or two tempers can be taken in the same trip. It is claimed by the builders of the system that the first cost of installation is lower than a belt conveyor system and that the cost of operation is also lower because less power is required.

A time check made during operation in the aluminum foundry showed that the monorail buckets can be filled in an average of 60 sec., and that they can be delivered to any one of the sixteen chutes and dumped,

NOTE: This is the concluding portion of the article of which the main portion appeared at page 1095 of our issue for April 2.

in an average of 66 sec. A man handled sand with a wheelbarrow over the same balcony and delivered it at the rate of $15\frac{1}{2}$ tons per day, as compared with 480 tons with the tramrail system, the latter thus doing the work of 29 men. On this basis, with full operation as required in the aluminum foundry, the manufacturer of the tramrail system, figuring labor at 45c. per hr., places the saving in wages resulting from the use of the tramrail at \$104.40 per day. A similar check has not yet been made in the gray iron foundry.

Molding sand in the brass foundry is handled and prepared in about the same way as in the iron foundry. However, as the volume of sand is much less than in

for crank and transmission cases. A tramrail system, similar to that used in the iron foundry, is provided for delivering sand to the hoppers above the floors on the opposite side of the foundry, where small molds are made.

The sand mixing and conveying equipment in the three foundries, except the tramrail equipment, was installed by the Palmer-Bee Co.

Iron Cleaning Department

In the iron cleaning room heavy castings are cleaned on one side and light castings on the opposite side. This is equipped with three sets of tumbling mills, six in a set, mostly with 36 x 72-in. barrels and largely of the Whiting make. These are group-driven from overhead motors connected to line shafts, and are served with hand hoists located in aisles, one hoist serving a row of machines on each side of the aisle. Cleaning equipment includes, in addition to grinding machines, a rotary table sand blast room built by the American Foundry Equipment Co. and a Pangborn sand blast table, the latter being used for cleaning cylinder castings. All the cleaning units are connected to the dust-collecting system.

Aluminum and Brass Foundries

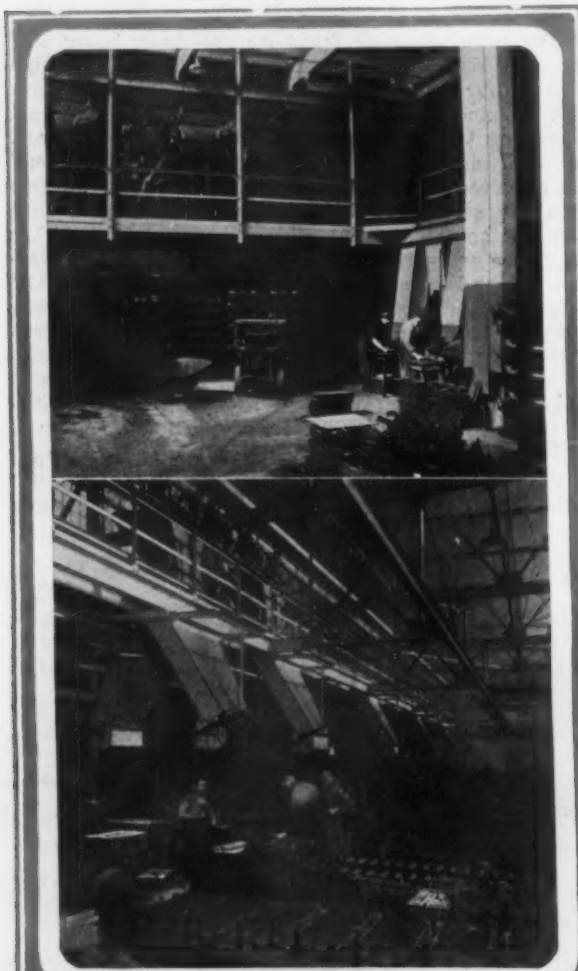
The aluminum foundry occupies a building 122 x 381 ft. In one side aisle crank and transmission cases are molded and two bays of this same side aisle are used for jobbing and service work. Molds for small parts are made in the other side aisle and in a portion of the center aisle. The feature of this foundry that is unusual in a large aluminum foundry is that the melting department is located in the center, with the molding units surrounding it. There are two metal storage rooms at either end of the melting department.

In the front of the building is the cleaning department and stock storage, occupying a space 100 x 122 ft. Crank case and transmission case castings are cleaned on one side and small parts on the opposite side. The foundry has 21 oil-fired Bellevue melting furnaces, each with a capacity of 350 lb., arranged in two rows in pairs. The furnace room is surrounded by a curtain wall extending from 6 ft. 6 in. above the floor. Blast is supplied by two blowers, one in each end of the room. Between each pair of furnaces is a ventilating duct, 15 x 36 in., covered with an open grate, through which a circulation of air is provided from a tunnel beneath. Transmission and crank case molds are made on Osborn direct-draw roll-over jolt molding machines. The copes of these molds are made in green sand, this being regarded as more economical than using dry sand. Snap and plate work is done on Berkshire squeezers. All molds except small work are closed on roller conveyors, similar to those used in the iron foundry, and all the molds are poured on the conveyors and are shaken out over shake-out grates in the aisles at the end of these conveyors. Large molds are poured from No. 125 crucibles.

Copper alloy, "50-50" copper-aluminum, for combining with the aluminum in the melting furnaces, producing an aluminum alloy containing 8 to 10 per cent of copper, is melted in a Rockwell oil-fired furnace of 225 lb. capacity. The company finds it more satisfactory to buy copper and make its copper alloy than to secure this alloy from outside sources.

Minor defects in crank and transmission cases and in other large castings are repaired by oxy-acetylene welding, no soldering being permitted in the aluminum foundry. The castings are placed in oil-fired furnaces, of which there are four in the cleaning room, and pre-heated to a temperature of 350 deg. Fahr. By pre-heating, cracking caused by contraction after expansion from the heat developed in welding which often occurs in making cold welds, is avoided and the torch is found to cut the heated metal quicker than the cold metal. The cleaning equipment includes a Sly sand blast room.

Electric furnaces are used exclusively for melting in the brass foundry. This is equipped with five furnaces of the rocking type, two of 750 lb. and three of 200 lb. capacity built by the Detroit Electric Furnace Co., and an Ajax furnace of 800 lb. capacity. This foundry is 120 x 122 ft. At the front is the cleaning



Upper and Lower Conveyor Systems in the Core Room (Top View)

The Tramrail System Has a Double Track Down the Center of the Iron Foundry, Which Is the Dividing Line Between the Foundry Floors, so that Hoppers on Each Side Can Be Filled. Molds pass from one row of machines in the center aisle to one shake-out grating and from the adjoining row of machines in the adjoining floor they pass in the opposite direction to the shake-out grating in the other gangway. The total length of the tramrail system in the iron foundry is 750 ft.

the iron foundry, lines of belt conveyors under the shake-out grates, and mechanical equipment for delivering sand to the machines, are eliminated. The sand is dropped through the grates into hoppers in a tunnel beneath the floor. These have bottom gates from which the sand is dumped into a buggy and conveyed to an elevator which delivers it to a beater. From here, after reconditioning, it goes onto the belt that delivers it into storage bins, from which it is wheeled in buggies to bins over the molding machines.

In the aluminum foundry the shake-out grates are over a belt and the sand is carried to a Rapp revivifier, from which a belt conveyor delivers it to a series of connected storage bins having a total capacity of 90 tons. From these a rotary feeder discharges it onto a belt conveyor that feeds the hoppers above the machines in the foundry floors making the large molds

In the Melting Department of the Brass Foundry Electric Melting Furnaces Are Used



department, provided with sprue cutters and grinding and sand blasting equipment; adjoining this is the melting department, and at the lower end four foundry floors. Metal is stored in a basement. The metal is poured into No. 80 crucibles, holding 200 lb., which are handled with a combination monorail system serving a series of light cranes. The molds for the most part are made on squeezer type machines. They are shaken out on each floor and the sand passes through the shake-out gratings to the sand mixing equipment in the basement.

Pattern Storage Building

Patterns are stored in a five-story building, 66 x 154 ft., of heavy type concrete construction, with steel sash,

having been designed with the view of possibly later using it as a manufacturing building. On the first floor are the general foundry offices, lockers and lavatories. The second floor is occupied by the pattern shop and the third floor by the pattern shop and millwright department. Patterns are stored on the fourth floor in steel racks. The metallurgical department for the entire Cadillac plant occupies the fifth floor.

Buildings, Heating and Ventilation

The three foundry buildings are of structural steel and brick construction and have the inverted type of monitor. The windows are of hammered glass set in steel sash, with an abundance of ventilating sections mechanically controlled. The roof slabs are of cement



Core Sand, After Leaving the Mixers, Is Delivered to Two Receiving Hoppers. From these a tramrail conveyor hidden in the picture behind the large conduit at the left distributes the sand to the twelve small bins shown above the gallery at the left, holding the different mixes, and another tramrail conveyor on a lower level carries the sand to the core-makers' benches. Each bench has a separate hopper. The upper conveyor system is 95 ft. long; the lower, that supplies the core makers, is 550 ft. long

tile covered with built-up water-proofing materials. The aisles through which the cores are transported by trucks have concrete floors. The floors in the molding and pouring bays are of brick, laid on a sand cushion over a concrete sub-floor. Some of the cleaning departments and repair departments have Blox-on-end wood block floors.

The 28-ft. paved courts between the buildings are covered with roofs 32 ft. wide at several points over doors in the sides of the buildings, providing covered passages for the transportation of cores. Above one of these roofs is a women's rest room and a transformer room, and over another is the fan house and supporting structure for the dust arrester units for both the brass and aluminum foundries.

The three foundries are heated by both direct and indirect radiation. Air, heated by being forced through coils, is distributed through outlets at various heights. In the brass foundry these outlets are below the floor line, so that the heated air will come in beneath the smoke and gases in the room. Louvers provided along the monitors are connected to the heating system, so that fresh outside air can be taken in or, by closing the louvers, the air in the room can be recirculated.

Dolly Trucks for Shop Use

Dolly trucks of the type illustrated, which are intended for use in shops, warehouses and storerooms, are being marketed by the Marion Tool Works, Inc., Marion, Ind. They are built low, the projecting skids being arranged to slope within 2 in. of the floor to



Projecting Skids Sloping to Within 2 In. of the Floor Facilitate Loading. The load is held by the slanting frame

facilitate the placing and removing of heavy loads. The wheels lock sideways to prevent crawling of the dolly away from the side being loaded. The wheels on the center axle are slightly larger than those at the ends and act as a pivot so that the truck may be tilted. The frame and skids are of malleable castings, the axles and wheels are of steel, the wheels being mounted in tool steel roller bearings. The frame is curved to hold barrels and loads of similar form, and holes are provided for attaching special skids, platforms or truck bodies as desired. Two sizes are available, one of which is 24 in. long, 17 in. wide and 3 in. high. The larger or No. 2 truck is 30 in. long, 21 in. wide and 3 in. high. The weights are 51 and 61 lb., respectively.

Production of Steel Barrels

Steel barrels produced in March, according to reports to the Department of Commerce, from 30 establishments, numbered 505,429. This is much larger than any figure recorded in more than a year. It compares with 413,823 in February and with 394,478 in March, 1924. The largest previous figure within 15 months was the 447,900 in October, 1924. Shipments were slightly greater than production, amounting to 510,928. Unfilled orders at the end of the month showed a decline to 1,264,860, having been about 20 per cent below the high mark at the end of December. Unfilled orders, however, were more than double the figure of one year ago and about triple the figure at the end of last June.

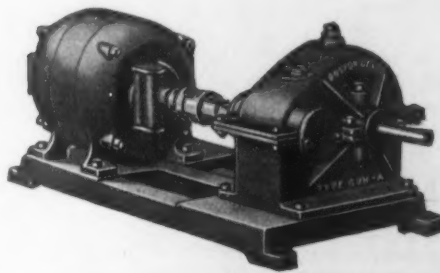
A series of connected tunnels extends under the buildings, starting with the main tunnel that extends from the power plant and having various laterals that carry the steam, hot and cold water, gas, oil and other lines as well as the electrical conduits and in some cases conveying belts of the sand-handling system. Reference has been made to tunnels that supply draft for the core ovens and aluminum melting furnaces. These are primarily for ventilation and have outside openings to bring in the fresh air. The other tunnels aid in ventilation, as air circulates through the tunnels and up through various openings provided for service purposes. In the knock-out room of the aluminum foundry a down draft is provided by an air suction system connecting to pipes in the tunnel, which results in a marked improvement in the working conditions. Ventilating outlets are provided through the roof above the molding sand mixing machines. These provisions and the carefully planned ventilating systems throughout the plant avoid troubles due to condensation.

Compressed air is brought from the power house, with the usual safeguards provided in large installations for the elimination of condensation in the air lines.

Reduction Units for Small Horsepower

One of the series of speed reduction units for drives of small horsepower placed on the market recently by the Boston Gear Works Sales Co., Norfolk Downs, Mass., is shown in the accompanying illustration. The gears are of herringbone type. Two types are available, one being designated as the type G U H-A and rated at $\frac{1}{4}$ hp. for driver speeds of 1000 to 1800 r.p.m. with ratios ranging from 2.76 to 1 to 6.11 to 1. The second type, the G U H-B, is rated at $\frac{1}{2}$ hp. for driver speeds of 1000 to 1800 r.p.m. and the ratios range from 2.90 to 1 to 6.77 to 1.

The unit is mounted on a cast-iron base as shown and connected to the motor with a Boston flexible coupling. The shaft of the reduction unit is at a sufficient height from the base to permit of a large oil reservoir for lubricating the gears and bearings. For reducing from a driver speed of less than 1000 r.p.m. the units may be equipped with straight teeth spur



Herringbone Gears Are Used. The motor is connected to the unit by a Boston flexible coupling

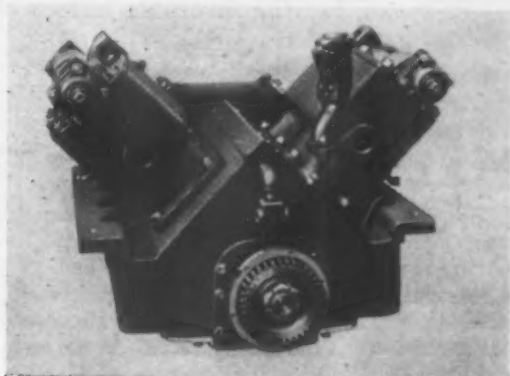
gears, and to obtain greater speed reduction a roller chain may be connected with the driven shaft of the unit.

Only two of New England's shipyards, the New London Ship & Engine Co., New London, Conn., and the Fore River Works, Bethlehem Shipbuilding Corporation, Ltd., are busy. Both plants are by no means busy in the sense of war-time activities, but are much more so than a year ago. The first named company is busy on Government work, while the Bethlehem Steel Co. subsidiary is working on Argentine battleships, and is doing considerable repair work at its Simpson, East Boston, plant, where a giant floating drydock is maintained. Since Jan. 1, last, approximately 20 vessels have been handled by the drydock.

Angle-Type Portable Compressor Added to Sullivan Line

The Sullivan Machinery Co., 122 South Michigan Avenue, Chicago, has added to its line a four-cylinder, 220-cu. ft. portable angle or V-type compressor designated as the WK-314. A feature is the arrangement of the compressor cylinders, which is claimed to reduce vibration markedly.

The cylinders are 5½ in. in diameter by 5 in. stroke, single acting. Instead of being arranged in a line vertically they are set in pairs, each pair being at right angles with the other, forming a "V." The pairs of cylinders are slightly offset lengthwise, which permits operation from a single crankshaft. There are only two crank pins, each pin accommodating two con-



The 90-Deg. Arrangement of the Pairs of Cylinders Provides a Counterbalancing Effect and Reduces Vibration

necting rods placed side by side. Counterweights are provided on the crankshaft, as in the case of the company's 110-cu. ft. machine, and the construction also follows that machine in providing a heavy square-rim flywheel at the rear end of the compressor, inside of the housing. The 90-deg. arrangement of the pairs of cylinders is intended to provide a counterbalancing effect similar to that in the company's angle compound compressors of the stationary pattern, and is claimed to reduce vibration markedly.

The general design of the machine follows that of the company's WK-312, 110-cu. ft. compressor, and the standard wafer valves are employed. Lubrication is by means of the splash system and the pistons and connecting rods are of the automobile type. The compressor is direct connected by means of an interlocking external and internal gear clutch to the Buda four-cylinder, four-cycle gasoline engine, and 43 hp. is required to drive the compressor at its full rated speed of 800 r.p.m. The engine and compressor are bolted to a cast steel frame, and the weight of the machine complete, without oil, water and gas, is 5360 lb. The compressor will operate two or three Rotator rock drills, three or four concrete breakers or tampers, and from seven to nine riveters or clay spaders.

Freight Traffic at New Records

Railroad freight traffic continues to be the greatest ever handled at this season of the year. For the first two months the aggregate was 70,560,495,000 net ton miles, or 0.2 per cent over the corresponding period in 1924, which marked the previous high record, according to the Bureau of Railway Economics, Washington. The increase over the same period in 1923 was 0.3 per cent and over 1920, 3.9 per cent, these two having been the highest records previous to 1924. The entire gain in the two months was shown in the Western district, with 1.6 per cent, for the Eastern district showed a decrease of 0.6 per cent and the Southern district a decrease of 0.5 per cent.

In the first three months, up to April 4, the load-

ings of revenue freight were 12,687,610 carloads, exceeding by 2 per cent the previous high record made last year, at 12,450,001 cars. The gain over the 1923 figure of 12,213,110 cars was 4 per cent.

Thirtieth Anniversary of George Rahmann & Co.

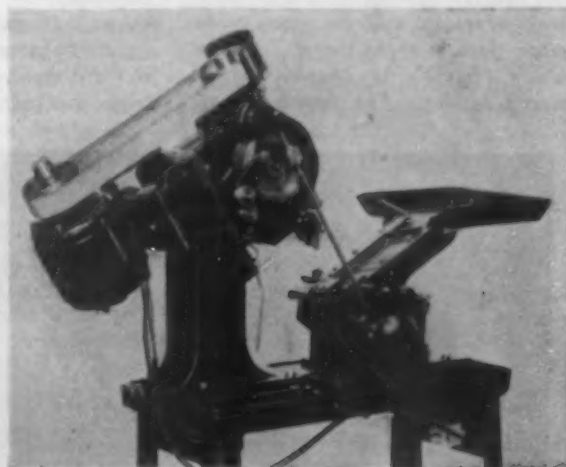
The thirtieth anniversary of the establishment of George Rahmann & Co., leather belting manufacturer, of 31 Spruce Street, New York, was celebrated by a dinner at the Machinery Club, New York, Tuesday evening, April 14, followed by a theater party.

The factory, as well as the office and sales force, attended and service pins were presented to the older employees. D. W. Aray, secretary of the Leather Belting Exchange, delivered a short message, extending his congratulations and predicting great development of the leather belting industry. Arthur H. Rahmann thanked the men for their loyalty and cooperation. E. C. D'Alleinne, on behalf of the whole organization, presented Mr. Rahmann with a traveling bag.

Automatic Burring Machine

An automatic burring machine designed especially for countersinking the rear end of the hole in metal turnings to remove the burr left by the cutting-off tool, is illustrated. The actual time for the burring operation is short and production depends upon the rapidity with which the operator feeds the work from the pan into the chute. The work is taken from the bottom of the chute and pressed against a gage block by a reciprocating link attached to toggle levers. The toggle levers straighten out in their final movement and exert sufficient pressure on the work to hold it against rotation during the burring operation. When the link draws back to grab a fresh blank, the finished piece drops out of the fixture.

The forward movement of the link is under pressure, but is under the control of the cam on the friction gear on the drill head. Therefore, if it meets with excessive resistance, as might happen if a piece were in wrong, the machine would stop, preventing



Burring Machine. Operation is automatic and production depends on rapidity with which operator feeds work from pan into the chute

the placing of any of the mechanism under excessive strain. The fixture is designed so that it can be used for various drilling and tapping operations in which the work can readily be fed from the chute.

The machine was developed by the Kingsbury Mfg. Co., Keene, N. H., and employs the company's standard automatic sensitive drill head, which is mounted at a 60 deg. angle so that the work can be fed in a 30 deg. plane.

APRIL BUSINESS READJUSTMENT GRADUAL

Favorable Factors

- (1) New business enterprises increase.
- (2) Purchasing power good.
- (3) Money easy and finances sound.
- (4) Excess production being eliminated.
- (5) Stocks of manufactured commodities decrease.
- (6) More favorable exports and imports.
- (7) Gain in bank debits.
- (8) Steel-consuming industries continue to show high rate of activity.

Unfavorable Developments

- (1) Commodity prices declining.
- (2) Stocks of manufactured commodities large.
- (3) Production in several basic industries still in excess of consumption.
- (4) Decrease in unfilled steel orders and scrap prices.
- (5) Bookings of steel castings dropped again in March.
- (6) Business failures increase.

The unfavorable factors indicate further business recession, but the favorable factors indicate that this will be moderate.

BY DR. LEWIS H. HANEY

Director, New York University Bureau of Business Research

Situation Uncertain

THE present business situation, as shown in the action of various business barometers, is uncertain. Some of these barometers show an upward tendency, others are declining. There are more favorable indications today than one month ago and business sentiment shows improvement.

Comparing the present turn in industry with those which came in the spring of 1923 and again in 1924, it may be said that overproduction has recently been checked in a more timely way, and the conclusion may be drawn that any recession will be more moderate than in those years. A condition of stability should be restored earlier. The possibility of

a prolonged depression is much more remote.

Nevertheless, the preponderance of evidence based on the most reliable and sensitive barometers of industry favors the conclusion that some further recession will develop in the immediate future, and that a period of business which may be classed as "only fair" is in prospect.

March data suggest that the physical volume of production and stocks of commodities have reached a peak, at least temporarily.

The trend of commodity prices is still downward and is likely to continue so a little longer. Bradstreet's March 1 index showed 28 gains and 28 declines out of 106 commodities. The April 1 index showed 16 gains and 43 declines.

As to money and finance: The upward trend of interest rates has been checked by the recession in

business activity. In the field of banking the Federal Reserve system reports indicate some decline in earning assets, notably in acceptances purchased and in holdings of Government securities. Demand deposits have also decreased and the ratio of loans and discounts to such deposits is lower. The reserve ratio, however, is about the same as in 1922 and is only a little lower than it was last year. The gold reserve, while lower than in 1924, has recently been maintained at over 76 per cent. In short, while the financial situation indicates some readjustment in business, it is, nevertheless, so strong as to make the development of any serious situation out of the question.

Employment of labor in March held practically level or decreased but slightly and the earnings of laborers were well maintained.

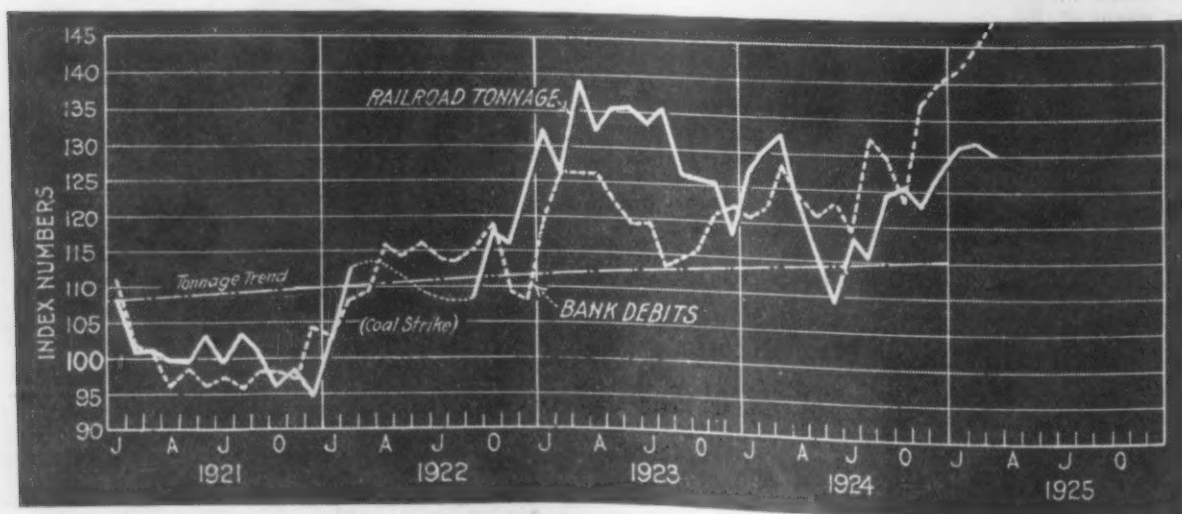


Fig. 1—Speculation Raised Bank Debits in March; Freight Traffic Less

The railroad tonnage curve is based on the car loadings and tons per car of Class 1 railroads and is adjusted for seasonal variation. The trend line shows the rate of the average monthly growth during the last ten years. The bank debits curve is the monthly average of total bank debits adjusted for seasonal variation. The curves are based on index numbers, with the monthly average for 1921 as 100.

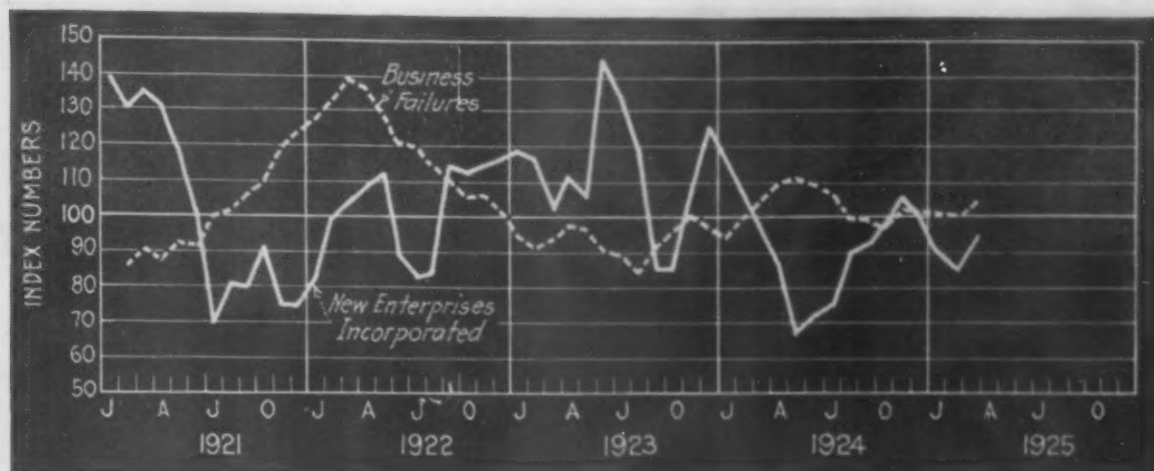


Fig. 2—Failures Increase But New Enterprises Also Show a Gain

Taken in connection with the decreasing cost of living, this is a favorable indication as to purchasing power.

Developments in foreign trade in March were more encouraging than anticipated, with exports gaining more than usual for the season.

Curtailment Desirable

THE two best indexes of our position in the business cycle in March failed to give a clear-cut indication. On the whole, they suggest a gradual readjustment of production to current consumption.

This is rather clearly suggested by the railroad tonnage curve shown in Fig. 1, which declined from February to a point a little lower than the January index. The figure is now 130 per cent of the 1921 average, against 132 per cent in February. This downturn reflects the curtailment in produc-

tion or shipments of coal, grain, and other heavy-loading products. Moreover, the indexes of production in basic industries prepared by the Federal Reserve Board declined 2½ per cent in February and manufacturing production was down over 5 per cent in the same month.

It should be emphasized that at this time curtailment of production is on the whole desirable. A large volume of carloadings is not the favorable indication which is frequently mentioned in the press. Carloadings correspond rather closely with production, and, as overproduction is one of the current difficulties, a decrease would tend to relieve the trouble.

On the other hand, the average weekly volume of bank debits (checks drawn) continued upward in March, amounting to \$11,698,000,000 against \$10,899,000,000 in February. The adjusted index shown in Fig. 1 moved up. This indicates an extraordinary volume of business transactions and is remarkable in view of the current

decline in commodity prices and in the volume of production. In explanation it may be suggested that the March figures for bank debits were still influenced by continued heavy speculative transactions.

The net conclusion must be that there were indications that the upswing in the business cycle was being checked in March, but that data for another month must be awaited before a definite downturn can be announced.

New Enterprises Increase

THE barometer pictured in Fig. 2 appears somewhat more favorable than in February. Indeed, one of the few indications of a turn for the better in the business situation is found in the index of new business enterprises. This index registered a decided gain in March and shows the existence of greater assurance concerning the business future.



Fig. 3—Both Steel Barometers Showed a Downward Trend in March

The unfilled orders curve represents changes in unfilled orders, allowing for seasonal variation. A rise in the curve may indicate either a smaller decrease or a larger increase than occurred in the preceding month. The scrap price is that of heavy melting steel scrap at Pittsburgh, as reported in THE IRON AGE.

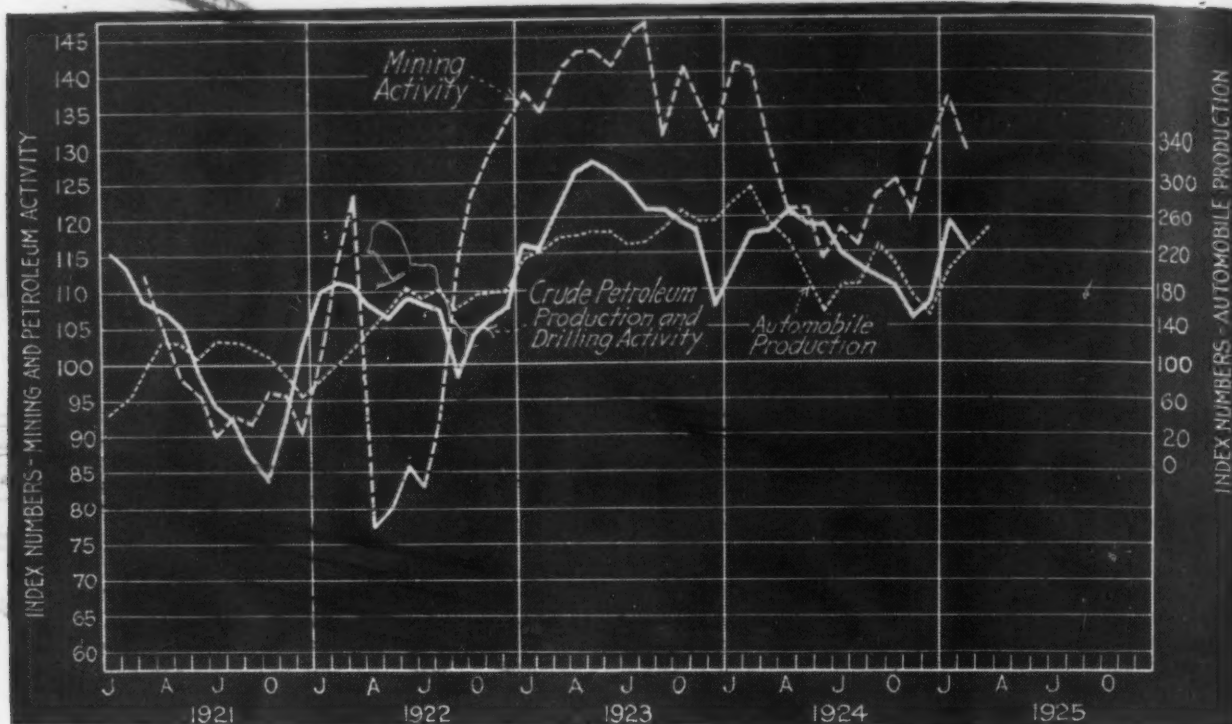


Fig. 4—Activity of Consuming Industries Still at High Level

The petroleum curve is the average of the monthly production reported by the United States Geological Survey and drilling activity as reported by the *Oil City Derrick*, each adjusted for seasonal variation. The automobile curve shows the monthly production of all cars and trucks and adjustment is made for seasonal variation. The mining production curve is as reported by the Harvard University Economic Service and is adjusted for seasonal variation. All figures are index numbers based on the 1921 average.

The trend of failures is less sensitive than that of new business enterprises. The curve of failures shown in Fig. 2 turned upward slightly in March, reflecting the less favorable condition now existing in business, which has resulted from the decline in commodity prices and the curtailment of production. This merely registers an existing condition, however, and has little value in anticipating the future trend.

Steel Barometers Decline

BOTH of the best steel barometers, as illustrated in Fig. 3, moved downward in March. Insofar as mechanical barometers can be relied on, these indicate that stocks in consumers' hands are still hanging over the market.

Heavy melting scrap at Pittsburgh in March reached the lowest average since the month of September, 1924. The March decrease, however, was less than that which occurred in February, and recently greater strength has been reported in some of the markets for scrap.

The curve showing the rate of change in the unfilled orders of the Steel Corporation as depicted in Fig. 3 has fallen well down toward the 1924 trough. The most that can be said is that the continued good consumption of steel may be

taken to indicate that not much further decline in this barometer is to be expected and that, consequently, reasonable hope may be entertained of a turn for the better.

It is to be concluded that, while more favorable readings are likely to be shown by the steel barometer within a month or two, the March forecast was unfavorable.

Consuming Industries Active

ONE of the most favorable indications with reference to the iron and steel industry is the continuation of good activity in a number of those industries which are heavy consumers. Fig. 4 shows the course of the activity of three such industries.

One of the most important of these industries is the manufacture of automobiles, and this continued to expand in March. The output of passenger cars and trucks in that month was more than 25 per cent greater than in February. This gain is above what is usual for the season, which brings the index up to a point but a little under that of a year ago.

Mining production as a whole turned downward in February, the decline being most marked in coal.

At this writing complete March data are not available on the petroleum industry, but drilling activity showed a large gain and the weekly figures of production have recently gained. Consequently the petroleum industry should furnish a good volume of business for the steel makers and dealers in oil well supplies.

Building Slows Down

DURING March the interest rate on 60 to 90 day commercial paper averaged higher than in February and the gain was somewhat greater than usual for the season. Accordingly, the adjusted index shown in Fig. 5 advanced, as has been forecast in this section. As to the future of money rates, it now seems doubtful if much further advance is likely during the next few months. The trend of commodity prices continues downward and the volume of business is not such as to indicate increased demand for funds. Moreover, the outward movement of gold continues and the Federal Reserve ratio holds at high level.

The relatively low interest rates constitute a favorable condition and this condition is of so much importance in the business situation that it makes one of the

In This Issue

New freight rates on steel may be far-reaching in effect.—I. C. C. lowers some rates from Pittsburgh and raises some from Chicago, tending to offset effect of Pittsburgh Plus decision. Pittsburgh mills now have advantage in certain districts hitherto in hands of Midwest steel makers, but Chicago mills do not believe decision is final.—Page 1213.

Business sentiment shows improvement.—There are more favorable indications today than one month ago, business analyst finds.—Page 1204.

Foundry saves \$104.40 per day in wages.—Monorail sand-handling system in new Cadillac foundry does work of 29 men.—Page 1200.

Rapid gain in automobile output.—March production was 362,017 vehicles, highest in 11 months.—Page 1198.

Finds "American humbug" a myth.—Dr. Benedicks, distinguished Swedish metallurgist, finds European belief that American methods are superficial is not based on fact. Declares that American uprightness in business could well be taken as a model by other countries.—Page 1192.

Sixty tons of materials handled to produce one ton of castings.—Great amount of material handling involved in making the finished product of the foundry suggests opportunities for cost reduction through use of mechanical handling equipment.—Page 1196.

What is behind the Government suit against the Bethlehem Companies?—There are grounds for suspicion that animus against an individual may be back of the \$15,000,000 claim for alleged surplus profits in shipbuilding.—Page 1210.

Another high record in car-loadings.—First quarter of 1925, with 11,765,235 cars loaded, exceeds 1924 records by 1.5 per cent.—Page 1203.

Discovers an island of iron.—Seven-mile island off coast of Australia has 76 million tons of high-grade ore.—Page 1204.

Instead of dirty steel it may be poor metallography.—A good commercial steel may look exceptionally dirty to the uninitiated eye, as rust, grease spots, rouge, scratches, etc., deceive the inexperienced metallographist.—Page 1187.

Financial situation strong.—"While the financial situation indicates some readjustment in business, it is nevertheless so strong as to make the development of any serious situation out of the question."—Page 1204.

Sheet mill workers will demand wage increase.—Advances to be demanded are expected to average about 20 per cent.—Page 1217.

To measure industrial activity, look to steel consumption.—Though fluctuations in steel output are wide and rapid, variations in consumption are not large. Accordingly, when demand runs much below the average, it will soon run above the average, and vice versa.—Page 1212.

Both iron and steel average prices decline.—Pig iron composite price drops from \$21.04 to \$20.75; steel from 2.531c. to 2.474c.—Page 1223.

England largest buyer of American machine tools.—Total exports of metal-working machinery for 1924 were valued over 14½ million dollars, 8 per cent above 1923.—Page 1193.

Fabricated structural steel bookings make good showing.—First quarter total was 545,200 tons, only 10 per cent under 1924.—Page 1219.

Steel casting business lowest since August.—March bookings of foundries reporting to Government totaled 59,508 tons.—Page 1198.

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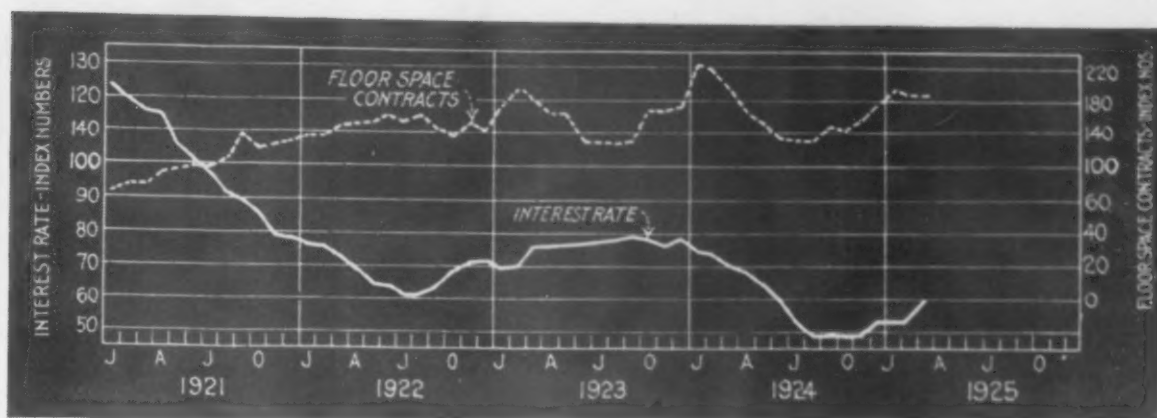


Fig. 5—As Interest Rates Advance, Building Volume Tends to Ease Off

The curve of building activity is based on the number of square feet of floor space in building contracts awarded, as reported by the F. W. Dodge Corporation. Seasonal variation is eliminated. The interest rate curve is the monthly average of rates on best commercial paper, adjusted for seasonal variation.

strongest arguments for the conclusion that no sharp recession or prolonged depression is to be expected in the near future.

The curve of building activity is shown in Fig. 5, together with the course of the interest rate, because of the relation existing between the two. There is a noticeable tendency for the two items to vary inversely, low money rates encouraging building. As forecast in this

department, the trend of the building activity, as measured by the F. W. Dodge Corporation's statistics of floor space in "contracts awarded," is now moderately downward. It is especially necessary in dealing with building statistics to allow for seasonal variation, and current announcements of an increase in building activity are to be discounted, since such increases are normal at this season. The

curve shown in the graph is adjusted to eliminate seasonal variation. The increase in March was less than usual and, consequently, the index moved downward.

The net conclusion with reference to building activity is that it holds at a high level and suggests a rather good volume of structural steel business, but that building activity is not up to last year and is gradually declining.

The Iron Age, April 23, 1925

CORPORATION POLICY

Chairman Gary Tells Annual Meeting That Conservatism Will Continue

At the annual meeting of the United States Steel Corporation, Monday, April 20, at Hoboken, N. J., Chairman Gary spoke of the policy of the corporation, saying that it would continue to be one of conservatism in the distribution of dividends and maintenance of a strong financial position. He said that the payment of more dividends than justified had resulted in some corporations going into receivership. Commenting upon conditions in the trade Judge Gary said:

Competition Strenuous

"Since the war competition in the United States has been increasing, and while I will not say it has been desperate, it has been decidedly strenuous." He referred to the number of new firms which are entering the business well equipped financially to meet competition.

Referring to the much discussed surplus of the corporation he said:

Surplus Explained

"We have undivided surplus on hand of \$517,061,308. From this amount there has been invested in new properties \$264,070,646, leaving a balance of net working assets of \$252,990,662. This large sum is found in the following account: Inventories, \$213,189,316; receivables, \$29,362,252; securities, \$36,506,508; cash, \$79,197,366, a total of approximately \$358,255,000. Deducting current and contingent liabilities of \$105,264,704, leaves the net working assets of \$259,990,662 referred to."

Judge Gary added that the corporation has about \$100,000,000 of United States Government bonds in its treasury which are held for contingencies. For instance, the Government has a claim of some \$64,000,000 for back taxes for past years. He believed that the corporation had paid all the taxes that were due.

LARGE SHEET SALES

March Production Heavy But Sales Increase in Higher Ratio

The monthly report of the National Association of Sheet and Tin Plate Manufacturers for March shows, as did several of the preceding monthly reports, an actual production well in excess of the expected production based upon the number of mills working. It will be noted that the theoretical capacity of all of the mills of the United States based upon working turns for March is 422,000 net tons. The capacity reporting is 73.3 per cent of that total, or 309,326 tons. The production of 290,308 tons is 90.6 per cent of that capacity. The mechanical operation is placed at 83.2 per cent.

Such efficiency, while it has been responsible for overproduction, with its consequent effect upon prices, also has been a cost saving factor and this probably has helped along the decline in prices, since with a saving to pass along to buyers no doubt many mills have done so. Sheet prices not only have lost the advances made over the first of the year but now are \$2 to \$4 a ton below the low levels of last November. Low prices appear to have stimulated business last month, as sales were larger than in either of the two earlier months of the quarter. Shipments gained last month over February but fell a few thousand tons below the January record.

The report for March compares with that of the two previous months and with March last year figures in net tons as follows:

	1925			1924
	March	Feb.	Jan.	March
Number of mills...	701	701	701	679
Capacity	422,000	386,400	428,600	298,800
Per cent reporting...	73.3	73.5	75.6	72.6
Sales	263,666	235,980	241,040	251,411
Production	290,308	293,290	317,424	278,767
Shipments	279,437	255,080	282,645	262,497
Unfilled orders...	550,422	565,133	607,190	422,889
Unshipped stocks...	94,074	105,994	91,363	82,549
Unsold stocks.....	57,714	52,717	49,460	42,888

ESTABLISHED 1855

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A. I. FINDLEY

EDITORS:

WILLIAM W. MACON

C. S. BAUR, *General Advertising Manager*

GEORGE SMART

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The Bethlehem Controversy

ORDINARILY lawsuits do not call for comment in these columns, because they are purely matters for decision in courts of justice. But the suit of the United States Government against the Bethlehem companies is of unusual character in that it attacks the motives of one of the most eminent and best regarded steel manufacturers in the country and raises the question whether the great and patriotic services of a citizen are to be considered in determining whether these motives were high or open to a sinister challenge.

The statements made by ex-Secretary of State Colby, Edward N. Hurley, formerly chairman of the United States Shipping Board, President Grace and Mr. Schwab showed beyond all question that Mr. Schwab did not wish to assume the responsibilities to which his country was calling him. The story as told by Mr. Colby will live in the history of the great war, for it shows both President Wilson and Mr. Schwab at their best. The President was not always able to meet men happily, but he was thoroughly human and yet exercised all the influence of the Commander of the Army and Navy of the United States in the greatest conflict of history when, taking it for granted that Mr. Schwab would not refuse to serve, "he put out both hands to him and spoke in acknowledgment of his sacrifices and of his patriotism in a way that would move any man."

In other words, Mr. Schwab surrendered, but he was well aware of the bitterness of war and of the possibility of unjust charges being made against him. So he accepted with the stipulation in writing that he would have no relation whatever with any contracts between the Government and the Bethlehem interests. He rigidly adhered to this agreement. No one—not even Frederick I. Thompson, the one man who has publicly admitted that he has urged the bringing of the suit—denies that Mr. Schwab rendered the highest service.

Mr. Thompson, who, by the way, is at present a member of the Shipping Board and one of the minority in radical disagreement with the majority of the board, after asserting that the service

of Mr. Schwab to the Government in war time "is not of issue," adds: "That service is clearly recognized, but it was patriotic, not compensatory." We believe, however, that it is entirely proper to consider Mr. Schwab's service, for it is inconceivable that, when he demonstrated his patriotism not only by taking the commission handed him by President Wilson but by doing more than any other personality could do in getting shipyard workers to build ships, he was at the same time capable of putting his own interest first.

One of the remarkable allegations of the Government's petition, stripped of legal verbiage, virtually asserts that Mr. Schwab was the only man connected with the Fleet Corporation or Shipping Board who knew anything about shipbuilding or had any common sense about business. This is tantamount to saying that Mr. Hurley and Mr. Piez and many others, men of the largest experience, allowed themselves to be hoodwinked.

It is difficult to take the charges seriously, and the making of them and the manner of making them beget strong suspicion that there is animus behind them. What other conclusion is to be drawn from the fact that, whereas the proceeding is against the Bethlehem corporations, the complaint reads more like the indictment of an individual?

The interests of all concerned and of the public demand that a thorough investigation of these charges be made. In the meantime the countless friends of Charles M. Schwab may well recall the famous declaration of General Bragg in regard to Grover Cleveland, "We love him for the enemies he has made," and hope that all who unjustly accuse Mr. Schwab or any other man who unselfishly served the United States in the time of supreme need will be uncovered and exposed to the public scorn which they deserve.

STATISTICS, if nothing else, show that March this year was a great improvement over March a year ago. Business indicators of the Department of Commerce put cotton consumption as 20

per cent above that of March, 1924, cement shipments over 13 per cent above those of a year ago, check payments nearly 17 per cent greater, farm prices over 14 per cent higher, merchandise exports one-third greater and car loadings of revenue freight 1 per cent greater. Practically the only negative item is general factory employment, which is $4\frac{1}{2}$ per cent off from March, 1924. The number of business failures was 2.4 per cent greater than for the same month last year, but liabilities were less by 65.2 per cent.

The Tank Builders' Association

ANOTHER indication that Mr. Hoover's attitude toward trade associations is bearing good fruit to the iron and steel industry is the recent organization of the Tank and Steel Plate Fabricators' Association. The need for such cooperation of related interests has been felt for a long time, and has been partly met by the formation of local or regional groups, meeting at intervals for friendly discussion of matters of common interest. It was only natural that these local groups should amalgamate into one larger organization.

The various tank manufacturers represented at the meeting must have believed in advance that there were plenty of things a national association could do to great mutual advantage. As they conferred, it was quickly apparent that the taboo activities, such as interchange of contract prices or the limitation of competitive fields, could be neglected entirely for the numerous things demanding united attention by the industry.

We believe that the new Tank and Steel Plate Fabricators' Association will find a most important activity, as has the successful American Institute of Steel Construction, in the consideration of codes—codes set up by engineering societies, such as the American Society of Mechanical Engineers, intended to cover sound design and construction; codes set up by insurance and casualty companies, which must be met before the installation can be insured; codes framed into law by States and municipalities, and which must be satisfied before the tank can be erected in those boundaries.

Multiplication of these codes becomes not only irksome to the manufacturer, but expensive to the purchaser. A bidder is not sure, without a careful study of the laws and regulations, whether a job made according to accepted standards in his State will be permitted in a distant community. Too often the regulations call for practices which may be useless or out of date—perhaps for details of design which have been much improved with passing years. Unquestionably, therefore, the new association will do a good work, not only in reducing costs but also in reducing the price to the ultimate consumer by making a drive for a standard specification and a uniform construction code.

Another thing such trade organizations can do with profit is to improve the quality of the output of the member organizations, by setting a high standard of performance and insisting that each conforms to the rules. The American Malleable Castings Association has been a conspicuous success in this respect. When it was formed the in-

dustry was discredited by much shoddy output. Steady improvement has been made in the metal until the association has been in the enviable position of approaching the American Society for Testing Materials and asking it to increase the severity of physical tests applied to malleable castings!

That the Tank and Steel Plate Fabricators' Association is alive to these possibilities is shown by a resolution authorizing a committee on research and welding. The junction of these two terms in itself is timely. In the next few years the developments in respect to riveted tanks and the newer welded construction will mean much to the industry. Tank manufacturers have a large investment in machinery and equipment, but they are not shutting their eyes to what is coming forward. They can only study the old and the new, side by side, most searchingly and then use each process in the place to which it appears best fitted.

Union or Open Shop in Coal

ONE of the three years for which the union bituminous coal mining scale was signed has now passed and the coal industry has made no progress toward settlement of its difficulty of being part union and part open shop. Instead, the strain has grown much greater.

The Pittsburgh district is not merely typical. It is and has been the field in which the strain to operate on the union scale has been the greatest. According to the Geological Survey weekly reports, the average operation of the Pittsburgh district in the coal year just ended was about $34\frac{1}{2}$ per cent, while in the last quarter of the year the average was about $35\frac{1}{2}$ per cent. The reports include some non-union operations, so that the percentage of union operation would be lower still. Furthermore, operation since April 1 has been lower still, possibly under 20 per cent.

Yet when, recently, the Pittsburgh and Ohio operators approached the United Mine Workers for a reopening of the scale matter President Lewis rejoined with a flat refusal.

A few months ago there was a calm and carefully prepared magazine article, "Must Murder Be the Price of Coal?" It reviewed the bloodshed there had been for many years and found no warrant in the present circumstances for belief that such things would not be repeated.

On the first of this month the United Mine Workers put into action the long planned efforts to unionize certain open shop fields of West Virginia. Accounts thus far indicate less success in curtailing the production of coal than was expected. The opinion among operators is that the effort stands practically no chance of success if continued along recent lines, while they add the proviso that it may be different if the union resorts to violence such as has been so common in the past. Will it? The United Mine Workers started with a "war chest" of several million dollars, and it has been accorded a backing by the American Federation of Labor greater than it ever had before.

What would be the attitude of the American Federation of Labor, now backing the United

Mine Workers so strongly, if violence were employed? It is interesting to observe what the new federation president, William Green, said recently in an address before the Harvard Union at Harvard University, printed in full in the April *Federationist*:

The trade union movement has been passing through that period when physical controversies and the tactics of force were most effective; it is now in a period when its leaders must seek the conference room, and there, by exposition and demonstration, convince conferees of the justice and wisdom of labor's position.

Mr. Green said "passing," not "passed." Is it to wait until it has unionized the coal industry? As to seeking the conference room, that was done just 27 years ago, when the operators gave the union the checkoff. Having been unable to dispose of the union they tried the experiment of fortifying the union with the checkoff, so as to eliminate the non-union operator. After 27 years of the experiment there is more non-union coal than ever. President Lewis says the solution in coal is reduction of the number of mines and miners, but what he does makes the reduction occur only at those mines controlled by his wage agreement.

Good Times and Normal Times

SINCE the latter part of 1920, there have been notable differences of viewpoint among those who from time to time undertook to judge whether the existing business conditions were "good" or not good. The differences, which have been observed both with respect to steel and to trade in general, were chiefly as to what was assumed to be normal. The war had largely destroyed former bases of reckoning.

When we are considering only the past, the determination of normal is simple. In essence it is merely the average, provided a long enough period be taken. In seeking to determine at any time what is "normal" for that time, however, an average cannot be struck, because only half the history has been written. Various expedients are used. One is to relate demand or output to productive capacity; but obviously that is unsafe because the productive capacity itself may be abnormal.

Nor was the war the only beclouding influence. The two years after the war added to the confusion. The majority of people regarded those times as good, or as very good. Now that more than four years have elapsed, it must be recognized that 1920 was distinguished for being very abnormal, not for being really good; for if the year had been merely good, four more years would hardly pass without our having at least a little more of the same.

In steel before the war, the periods of good and bad times were clearly marked. One good period was almost three years long—from late in 1904 or early in 1905, through the tenth month of 1907. The others lasted more than a year but less than two years.

Lately the swings have been much more rapid. Last year we had in production a very high and a very low rate only four months apart. The up-

turns in production are so sharp that too strong expectations are created as to both strength and duration of demand, so that a feeling of disappointment arises sooner than it would if there were a clearer conception of what is normal.

We shall have a more correct view of conditions if we look more to consumption of steel and less to production. It is readily seen that our rate of steel consumption has varied much less from time to time than has production. As to business in general, or industrial activity, steel consumption is the measure. It is true there are variations in consumption of steel in every individual line, but these are not large, and the composite of all steel consumption is a rather slowly changing thing. The railroads use a great deal of steel, and they formulate not monthly but annual programs. General building has been practically continuous, with not even a great deal of seasonal variation. The oil industry varies its consumption of steel according to rules of its own.

Unless there are marked changes in the fundamentals of business and finance we may expect the conditions of the past few years to prevail in the next few years. We may not know precisely what is normal in steel demand, but we may safely assume that every time demand runs much above the average it will soon run below the average, and then that soon again it will run above the average.

IT is estimated by the National Automobile Chamber of Commerce that 2,000,000 carloads of products, connected with the automotive industry, are handled each year by American railroads. This includes 740,000 carloads of automobiles and parts, 640,000 carloads of gasoline for motor vehicle use, and smaller quantities of other materials. The total represents from 4 to 5 per cent of the total freight movement on all the railroads of the country. This may be regarded as in a sense an offset to the fact that the motor truck is taking away a goodly share of the short haul business of the railroads. While it probably is true that the truck is taking a much larger tonnage from the railroads than it is providing in return in its own carriage to distant points, yet the automobile industry as a whole may be evening the matter up rather well as things stand at the present time.

British Pig Iron and Steel in March

LONDON, ENGLAND, April 20.—(By Cable).—The pig iron production in March was 607,900 gross tons, or the largest this year.

The March steel output was 684,700 tons, being in excess of January and February. The March production of both pig iron and steel is still under the 1924 monthly average.

Comparative production figures for the British steel industry in gross tons per month are as follows:

	Pig Iron	Steel Ingots and Castings
1913, per month.....	855,000	639,000
1920, per month.....	669,500	755,600
1921, per month.....	217,600	302,100
1922, per month.....	408,300	486,000
1923, per month.....	619,800	707,400
1924, per month.....	609,900	685,100
January, 1925.....	569,400	605,100
February	534,100	646,400
March	607,900	684,700

Many Freight Rates Are Changed

Interstate Commerce Commission Hands Down Decision in Jones & Laughlin Case— Much Dissatisfaction Expressed

WASHINGTON, April 21.—The decision of the Interstate Commerce Commission in the so-called Jones & Laughlin Steel Corporation case, handed down on Friday of last week, is construed here as a mild compromise in favor of the contention of the Pittsburgh producers for reductions under the existing fifth class rates on finished iron and steel products from their district to St. Louis and points in Illinois and Indiana. Holding that these rates are unreasonable and unduly prejudicial, the commission, through Commissioner Campbell, prescribed a new scale of rates, suggested to become effective in 90 days, which cuts the rates from Pittsburgh by 1c. per 100 lb. in some cases and as much as 2c. per 100 lb. in others. These decreases, however, are not so important as was the raising of the rates on similar products from the Chicago district to a scale parity with the Pittsburgh rates, having the result of removing the existing commodity rates from the Chicago district, including Joliet, Ill., and Gary and Indiana Harbor, Ind. Rates from Fort Wayne, Kokomo, Anderson, Vincennes and Terre Haute, Ind., also were affected.

Great interest is shown as to the effect the finding will have in intensifying competition between mills in the Pittsburgh and Chicago districts. The decision differs from the tentative report which was prepared by Examiner Disque, who went further than the commission and approved the request of the Pittsburgh interests that the fifth class rate be reduced to the equivalent of the sixth class rate.

Important Changes

Providing an index to the entire new structure of rates ordered, the decision, taking the Pittsburgh-Chicago rate of 34c. per lb. (which is left unchanged), projects it into St. Louis and pulls down by 2c. per 100 lb. the rates from Pittsburgh to all points west of the Mississippi River, where the rates are made on the river combination. A striking illustration of the sharp increase in rates from Chicago and the changed relationship that will exist between the Pittsburgh and Chicago districts is the scale which will apply to St. Louis. The Chicago-St. Louis rate is increased 40 per cent from the present commodity rate of 17.5c. per 100 lb. to 24.5c. per 100 lb. At the same time, the Pittsburgh-St. Louis rate is reduced from 43c. to 41c. per 100 lb. Because of the connection it was observed in Federal Trade Commission quarters that the decision has the effect of extending the Pittsburgh plus system in view of quotations now being made on a delivered basis instead of the hoped for mill base. It was pointed out that the decision reverses the existing situation and gives Pittsburgh instead of Chicago the controlling hand on different products, an example of which was declared to be shapes. It was explained that assuming the quotation of 2.10c., Pittsburgh, on this product, the delivered price at St. Louis from the Pittsburgh district would become 2.51c. Assuming the quotation of 2.30c., Chicago, the delivered price at St. Louis from Chicago would become 2.545c. This makes a difference of 3.5c. per 100 lb. in favor of Pittsburgh, which, it is stated, the Chicago mills have to absorb if they are to meet Pittsburgh competition under the new rate scale. At present the delivered St. Louis price from Pitts-

burgh, with the rate of 43c., is 2.53c., while the price from Chicago, with the rate of 17.5c., is 2.475c., delivered at St. Louis. This makes a difference of 5.5c. in favor of Chicago. Adding these two differences, the net change by reason of the decision is 9c., while the present difference between the Pittsburgh-St. Louis rate and Chicago-St. Louis rate is 25.5c. per 100 lb., but which will be reduced to 16.5c. per 100 lb. in favor of Chicago.

How St. Louis Is Affected

The situation as it relates to new market conditions in St. Louis territory as will exist when the new rates are effective is held to be typical as a general thing of the other points, especially those intermediately situated. Old and new rates both from Chicago and from Pittsburgh and the new scale under which they are constructed are set forth in accompanying illustrations, the rates stated being some of the more important ones, but manifestly not covering the wide range that is involved and whose working out in tariff schedules will prove to be a large task. Some doubt that it can be completed in the 90-day period given.

The report in large measure preserves the existing relationship of rates from such points as the Wheeling, W. Va., Buffalo, N. Y., and Johnstown, Pa., district on the one hand and Pittsburgh on the other, as had been asked by producers in the different districts. This is especially true of the Johnstown, Pa., district, with a differential of 1.5c., which, the decision says, may be continued over Pittsburgh so long as rates from other producing points in general and east of, but near the Pittsburgh district, are differentially related to the Pittsburgh rates. The decision says that the failure to accord Youngstown a differential basis while other points near Pittsburgh have it, needs explanation, "but that feature is not an issue in this proceeding."

Rates from Pittsburgh District

Invariably, rates from the Pittsburgh district either are unchanged or are reduced, while rates from Chicago are almost invariably increased. Only in cases where fifth class rates applied from Chicago have they been reduced from that district, and these cover but relatively few points. Dealing with the so-called long-and-short-haul provision, the decision permits the application of the scale over longer routes through Chicago, so that they might continue to participate in the iron and steel freight traffic.

How the Scale Is Built

The scale is built on a mileage basis. It ranges from 5 miles and under up to 640 miles. The minimum distance carries a rate of 6c. per 100 lb., while the maximum distance provides a rate of 42c. per 100 lb. The destinations being further from Pittsburgh the scale naturally affects Chicago the most. Giving a key to this scale, it may be explained that under the group of "480 miles and over 460 miles," the rate fixed is 34c. per 100 lb. The distance from Pittsburgh to Chicago is 468 miles, so that this rate, now existing, will continue in effect. The decision says that grouping of the origin and destination points involved has been more or less general. It states that no substantial objections

"to reasonable groupings appear of record, and in applying the rates herein prescribed groupings may be employed, provided the rates from and to each of such groups, and in, the aggregate, average substantially the same as if made from and to each point separately under the scale prescribed." No order except under the long-and-short-haul section was entered with the decision, but it is pointed out that the carriers will be expected within 90 days from the date the decision was reached (April 15) to readjust their rates in accordance with the findings. It is added that "if at the conclusion of such period the rates have not been so adjusted, the matter may again be brought to our attention."

The decision does not affect the raw and semi-finished lines, such as pig iron, ingots, billets and slabs, rated lower than fifth class. In arriving at the conclusion that the Pittsburgh rates have been unduly high when compared with those from Chicago, it is stated that the lower rates from the latter district were established by carriers for commercial purposes so as to increase traffic on Western lines.

It is declared that the complainants sell or seek to sell at all points in the destination territory where there is or where they may develop a demand for their products.

Not Sold on Pittsburgh Basis

"A large amount of the business," it is stated, "is not sold on the Pittsburgh basis. For instance, the delivered price at St. Louis on the most important articles is generally the Chicago price plus freight. The Pittsburgh interests must absorb the difference, which amounts to \$5.10 per ton as compared to \$1.70 in 1901. The prices of iron and steel articles have, however, also increased materially and the purchasing power of the dollar has decreased, so that in proportion to the value of the commodity and that of commodities in general, the ability of shippers to compete with one another as compared with 1901 is not necessarily correctly reflected by merely comparing the rates in effect in the two years. The record shows that in recent years the business from the Pittsburgh district has fallen to a mere fraction of its former value."

The Rates Prescribed

"Upon all the facts of record," says the decision, "we are of the opinion and find that for the iron and steel articles, in carloads, in the aggregate that are included in this case the present rates from the Pittsburgh group to destination territory under consideration are, and for the future, will be unjust and unreasonable to the extent that they exceed, or may exceed, the rates in cents per 100 lb. set forth in the table below for the distances stated, which are found to be just and reasonable maximum rates for the future."

"Upon an appropriate record it might be found proper to differentiate as between the high grade and the low grade, between the finished and the unfinished, and between the heavy loading and the light loading articles, dividing them into two or more groups taking different ratings, and our conclusion herein is without prejudice to a different finding in a case where that question may be presented."

"The Indiana destination points embraced by the complaint are those to which commodity rates are published from Illinois and Indiana iron and steel producing points on a lower basis than fifth class."

"The Illinois destination points are those south and east of the line of the Atchison, Topeka & Santa Fe, running from Chicago through Joliet and Streator to Peoria, thence via the east bank of the Illinois River to its confluence with the Mississippi River at or near Grafton, Ill.

The principal destination points involved are named below:

Alton, Ill.	Sparta, Ill.	Kewanee, Ill.
Belleville, Ill.	Springfield, Ill.	Monmouth, Ill.
Cairo, Ill.	Thebes, Ill.	Pekin, Ill.
Chicago, Ill.	Harrisburg, Ill.	Sycamore, Ill.
Danville, Ill.	Kankakee, Ill.	Bradley, Ill.
Decatur, Ill.	Jacksonville, Ill.	Buckley, Ill.
Havana, Ill.	Lode, Ill.	Bloomington, Ill.
Hillsboro, Ill.	Marion, Ill.	Cambria, Ill.
Jacksonville, Ill.	Madison, Ill.	Carmel, Ill.
Litchfield, Ill.	Monticello, Ill.	Collinsville, Ill.
Mount Vernon, Ill.	Peotone, Ill.	East Alton, Ill.
Sterling, Ill.	Paxton, Ill.	Fetzer, Ill.
Paris, Ill.	Pana, Ill.	E. St. Louis
Quincy, Ill.	West Frankfort, Ill.	Edwardsville, Ill.
Robinson, Ill.	Carpentersville, Ill.	Georgetown, Ill.
Evansville, Ind.	Clearing, Ill.	Grand Tower, Ill.
Lafayette, Ind.	Elkhart, Ind.	Mishawaka, Ind.
Michigan City, Ind.	Goshen, Ind.	Muncie, Ind.
New Albany, Ind.	Hammond, Ind.	Nappanee, Ind.
South Bend, Ind.	Huntington, Ind.	Newcastle, Ind.
Corydon, Ind.	Huntingburg, Ind.	Peru, Ind.
Anderson, Ind.	Indianapolis, Ind.	Pullman, Ind.
Auburn, Ind.	Kendallville, Ind.	Richmond, Ind.
Berne, Ind.	Knightstown, Ind.	Rochester, Ind.
Bluffton, Ind.	Kokomo, Ind.	Terre Haute, Ind.
Butler, Ind.	La Porte, Ind.	Uniondale, Ind.
Carbon, Ind.	Ligonier, Ind.	Wabash, Ind.
Columbus, Ind.	Logansport, Ind.	Warren, Ind.
Connersville, Ind.	Middlebury, Ind.	Worthington, Ind.

The order is described as "Fourth Section Order No. 9119 of the Interstate Commerce Commission, as to iron and steel articles from Pittsburgh district" and is as follows:

"It is ordered, That defendants in docket No. 15,110, Jones & Laughlin Steel Corporation v. Baltimore & Ohio R.R. Co. be, and they are hereby authorized to establish and maintain, over all routes, for the transportation of iron and steel articles, in carloads, from points in the Pittsburgh district to St. Louis and points in Illinois and Indiana involved in said proceeding, the lowest rates approved in the report attached hereto and made a part hereof, as maximum rates over any route between said points and to maintain higher rates from or to intermediate points; provided that the rates from or to said intermediate points shall not exceed the rates approved in the said report as maximum rates and shall in no case exceed the lowest combination; and provided further, that the relief herein authorized shall not apply, (1) where the distance over the short line or route is 200 miles or less and the longer line or route is more than 70 per cent circuitous; and (2) where the distance over the short line or route exceeds 200 miles

Distance	Rate Per 100 Pounds Cents	Distance	Rate Per 100 Pounds Cents	Distance	Rate Per 100 Pounds Cents
5 miles and under	6	100 miles and over 95	15	290 miles and over 280	24.5
10 miles and over 5	7	110 miles and over 100	15.5	300 miles and over 290	25
15 miles and over 10	7.5	120 miles and over 110	16	320 miles and over 300	26
20 miles and over 15	8	130 miles and over 120	16.5	340 miles and over 320	27
25 miles and over 20	8.5	140 miles and over 130	17	360 miles and over 340	28
30 miles and over 25	9	150 miles and over 140	17.5	380 miles and over 360	29
35 miles and over 30	9.5	160 miles and over 150	18	400 miles and over 380	30
40 miles and over 35	10	170 miles and over 160	18.5	420 miles and over 400	31
45 miles and over 40	10.5	180 miles and over 170	19	440 miles and over 420	32
50 miles and over 45	11	190 miles and over 180	19.5	460 miles and over 440	33
55 miles and over 50	11.5	200 miles and over 190	20	480 miles and over 460	34
60 miles and over 55	12	210 miles and over 200	20.5	500 miles and over 480	35
65 miles and over 60	12.5	220 miles and over 210	21	520 miles and over 500	36
70 miles and over 65	13	230 miles and over 220	21.5	540 miles and over 520	37
75 miles and over 70	13	240 miles and over 230	22	560 miles and over 540	38
80 miles and over 75	13.5	250 miles and over 240	22.5	580 miles and over 560	39
85 miles and over 80	14	260 miles and over 250	23	600 miles and over 580	40
90 miles and over 85	14	270 miles and over 260	23.5	620 miles and over 600	41
95 miles and over 90	14.5	280 miles and over 270	24	640 miles and over 620	42

Present and prescribed rates in cents per 100-lb. from Pittsburgh and Chicago districts to typical destinations included in decision

From	To St. Louis		To Chicago	
	Present Rate	Prescribed Rate	Present Rate	Prescribed Rate
Pittsburgh	43	41	34	34
Chicago	17.5	24.5	..	..

From	To South Bend, Ind.		To Evansville, Ind.	
	Present Rate	Prescribed Rate	Present Rate	Prescribed Rate
Pittsburgh	32	30	36	36
Chicago	13	14	28	*24.5

*Fifth class rate from Chicago apply to some river points and in these few instances were reduced.

From	To New Albany, Ind.		To Alton, Ill.	
	Present Rate	Prescribed Rate	Present Rate	Prescribed Rate
Pittsburgh	33	32	43	43
Chicago	28.5	*22	17.5	23

*Fifth class rate reduced.

From	To Springfield, Ind.		To Vincennes, Ind.	
	Present Rate	Prescribed Rate	Present Rate	Prescribed Rate
Pittsburgh	41	39	35	35
Chicago	17.5	19.5	15.5	22

From	To Terre Haute, Ind.	
	Present Rate	Prescribed Rate
Pittsburgh	34	34
Chicago	13	19

and the longer line or route is more than 50 per cent circuitous, except that where the short line or route exceeds 200 miles and the longer line or route does not exceed 340 miles relief will apply to such line or route even though it is more than 50 per cent circuitous."

Pittsburgh Not Entirely Satisfied with the Decision

PITTSBURGH, April 20.—Steel company traffic officials here refuse to become excited over the decision of the Interstate Commerce Commission in the Jones & Laughlin rate case handed down last Friday and there is not much elation among those who had expected that the recommendations of the attorney-examiner, William A. Disque, would be adopted. What had been hoped for was that Pittsburgh producers would be given full sixth class rates into Indiana and Illinois points and to St. Louis and placed upon a mileage par so far as rates were concerned with Chicago district mills. What the decision is interpreted to mean is that Chicago district mills will be called on to pay higher rates into the disputed territory, while the Pittsburgh district gets slight reductions here and there, but holds to present charges or pays a little more elsewhere. It was not the idea of those who brought the action that Pittsburgh would gain at the expense of Chicago, but merely that Pittsburgh rates should be placed upon a more equitable basis in relation to those from Chicago district mills.

Shipping to Chicago Territory

Since the rate to Chicago from Pittsburgh is 34c. per 100 lb. in the proposed schedule of rates, as in the

old one, it will be just as hard for Pittsburgh mills to ship into Chicago as formerly. This is largely the case with a number of points in Indiana, where Pittsburgh mills get an advantage chiefly through higher rates from the Chicago district. To St. Louis, the proposed rate from Pittsburgh is 41c. per 100 lb., as against 43c. in the present tariff; that cut means 40c. per net ton of saving, to which are added the increases in the Chicago rate to that point of 3c. per 100 lb. in the case of wire and wire products, 7c. in the case of plates, shapes and bars and 9c. in the case of spikes and other railroad material. With shapes at 2.20c., base, Chicago mills, plus 17½c. per 100 lb. freight to St. Louis, there would be a delivered price of 2.37½c. per lb., Pittsburgh, and with a base price of 2.10c. plus 43c. per 100 lb. freight, would have a delivered price of 2.53c., making it necessary for Pittsburgh mills to absorb the difference of 16½c. per 100 lb. or \$3.30 per ton to get into St. Louis on even terms with Chicago. Assuming the same base prices at the two points, the proposed rates will mean a delivered price from Pittsburgh of 2.51c. and from Chicago of 2.44½c., which figures a necessary freight absorption by Pittsburgh mills of \$1.30.

Decision May Not Be Final

Taken as a whole, the proposed rates do favor the producers in the Pittsburgh district and in other nearby districts who intervened in the action for the purpose of preserving the old rate structure. That there is lack of excitement and of elation over the decision probably is due to the fact that generally the decision is not regarded as final and that the case for one reason or another may be reopened and the relief afforded Pittsburgh and nearby district producers may be indefinitely delayed. The fact is not lost sight of here that at present the Chicago district mills have three general groups of rates, which, into St. Louis for example, call for a rate from Chicago district mills of 15½c. per 100 lb. on spikes and other railroad material; 17½c. per 100 lb. on plates, shapes and bars and 21½c. per 100 lb. on wire and wire products.

So far as the decision of the Interstate Commerce Commission has been studied and analyzed, the proposed schedules call for the same rate on all classes of iron and steel products. It is felt here that this is sufficient ground for either the railroads or the shippers to ask for a reopening of the case, and the commission has said it would be reopened on this basis, because it is held that plates, shapes and bars, not being as fully finished as some other products, are entitled to a lower rate than more fully finished material—that which is ready for use by consumers when it leaves the mills, as, for example, nails and fence. It can be said, however, that the commission has a precedent in its decision in that on almost all products shipped from Pittsburgh, pipe being the principal exception, there is a flat rate to the West.

Few traffic managers have yet had time to thoroughly study and analyze the decision and its full portent is not entirely clear to anyone. The common expression based on hurried examination, is "it does not mean much," and there is a disposition to withhold comment until there has been time for complete examination of the decision and whether there is to be a reopening of the case.

Decision Not Regarded Final at Chicago—Declared Disastrous to Small Companies

CHICAGO, April 21.—Traffic officials of Western mills find a lack of definiteness in the decision of the Interstate Commerce Commission in the case of Jones & Laughlin Steel Corporation vs. Baltimore & Ohio Railroad Co., et al. Commission found that fifth class rates for transportation of manufactured iron and steel articles in carloads from Pittsburgh district points to St. Louis and points in Illinois and Indiana are unreasonable and prejudicial and likewise that commodity rates on the same commodities from Illinois and Indiana points to the same destinations are unduly

preferential. As a basis for reasonable and non-prejudicial rates, the commission prescribed a mileage scale of rates. As an example of the working out of the scale, the rate from Pittsburgh to St. Louis would be reduced from 43c. to 41c. per 100 lb. and the rate from Chicago to St. Louis would be increased from 17.5c. to 24.5c.

Groupings Regarded Possible

A careful reading of the decision, however, raises the question whether the mileage scale will be literally

carried out or whether groupings will be employed and, if so, how large the groupings will be. On this point the commission says: "In applying the rates herein prescribed, reasonable groupings may be employed, provided the rates from and to each of such groups, and in the aggregate, average substantially the same as if made from and to each point separately under the scale prescribed."

The Rates Affected

That the mileage scale cannot be strictly applied is the consensus of opinion here. The only rates from Illinois and Indiana producing centers which are affected by the decision are commodity rates in Indiana and Illinois south and east of the Atchison, Topeka & Santa Fe, running from Chicago through Joliet and Streator to Peoria, thence via the east bank of the Illinois River to its confluence with the Mississippi River at, or near, Grafton, Ill. Upon application of the mileage scale the rates to destinations in this southern section of Illinois would be materially higher proportionately than those to destinations north and west of the designated line. Inevitably, southern Illinois cities would raise the issue of discrimination, which would lead to long drawn out proceedings before the Illinois Commerce Commission and finally perhaps before the Interstate Commerce Commission. As an example of the complications which might easily arise, it is pointed out that the Illinois Central line to Peoria penetrates the southern section of Illinois covered by this decision. Under the application of the mileage scale, intermediate points on that railroad would carry larger rates than from Chicago to Peoria. It is decidedly questionable whether the Illinois Commerce Commission would grant the railroads Section 40 relief, authorizing them to charge the higher rates at the intermediate points.

Serious Confusion Might Result

In view of the profound disturbance to the rate structure which would result from an attempt to apply the proposed mileage scale, it is felt in Western circles that a more logical way of correcting the discrimination alleged by the complainants in this case would be to include northern Illinois, southern Wisconsin and Mississippi River points with southern Illinois in any realignment of rates that is undertaken. Commodity rates in Indiana are not universal, as they are in Illinois, but are limited to a number of important centers, particularly those which are locations of mills.

Door Left Open

While the commission gives the railroads 90 days in which to readjust their rates, it specifically opens the door for further consideration of the case by stating that in the event of failure to adjust rates within that time the matter may again be brought to its attention. Traffic officials here believe that the decision in its present form is by no means final and conclusive and that rates must either be worked out through negotiation between mills, carriers and other interested parties or the case must be reopened. Attention is also called to the fact that the mileage scale rates are suggested as maximum rates, obviously opening the way for negotiation which might lead to final agreement on a lower scale. It is also pointed out that the decision is strictly limited in its application to Indiana and that section of Illinois previously described. The remainder of Central Freight Association territory was not under attack. Yet, if the mileage scale rates replace the commodity rates on short hauls from Western mills because the latter are deemed prejudicial and preferential in comparison with long haul rates from the Pittsburgh district, Western producers will be burdened with higher rates on short hauls than those in effect in the Pittsburgh district. In fact, the same logic which led to the commission's decision in this case would lead to a finding that commodity rates on short hauls now enjoyed by Pittsburgh district mills are prejudicial and preferential as compared with long haul rates from the West to the same destinations. That would be reversing the present picture.

The outcome of the case is particularly distasteful to some of the smaller Western producing interests. It is regarded as just one more step in the direction of the eventual elimination of the small mill as contrasted with the large integrated producer. It is asserted that the abandonment of Pittsburgh plus, of course, took away one important support upon which small Western interests had become dependent. Now the reduction of freight advantage over Pittsburgh competitors to nearby destinations threatens to further restrict their margin of profit.

Favorable Impression at Youngstown

YOUNGSTOWN, April 21.—Traffic managers of district steel companies have not had sufficient time to thoroughly digest the rate decision handed down last week by the Interstate Commerce Commission, but the impression is that this district will benefit in a substantial way from the new rates promulgated. Large shippers in this district have combined their efforts to secure more advantageous freight charges on iron and steel products, especially to the West and Southwest. This work has been in direct charge of H. D. Rhodehouse, traffic manager of the Chamber of Commerce, who has been active in compiling data for the benefit of examiners and the commission. Mr. Rhodehouse states a cursory survey of the decision indicates Youngstown steel companies will benefit to the extent that there will be more of an equalization of rates as between the Youngstown and Chicago districts. Steel makers here have maintained the Chicago district was favored in the rates in effect to the West and Southwest. It appears that the Chicago rate advantage to the Southwest will be narrowed by 9c. per 100 lb., or \$1.80 per ton. Youngstown is expected to continue to have a rate of about 38c. per 100 lb., but the Chicago rate, if made effective by the carriers, will be increased from 17.5c. to 24.5c.

Keen Competition in Pig Iron Markets in Youngstown District

YOUNGSTOWN, April 21.—Merchant blast furnace interests face the likelihood of keener competition in the near future from steel makers operating their own furnaces, who have surplus stocks. One merchant interest in this area reports a small volume of inquiry. This company recently sold a small tonnage of off-grade basic. Prospective iron purchasers have received quotations on basic below the current market.

In the Youngstown district, 29 of 45 stacks are in action. During the past week, the Carnegie Steel Co. suspended a blast furnace at Farrell, Pa., preparatory to the installation of new boiler equipment. No. 1 stack at Sharpsville, Pa., of the Shenango Furnace Co., will be blown out as soon as orders now on hand are completed.

Steel producers at Youngstown and in the immediate vicinity have fairly liberal stocks of iron piled in their yards. Entrance of such interests into the open market, to dispose of accumulated stocks to merchant buyers, will create still keener competition for the strictly merchant iron makers.

The Youngstown Boiler & Tank Co., Youngstown, announces that the first welded oil barge to be built around tanks made by the company was recently completed for the Pennsylvania Petroleum Products Co., for transporting oil between Fall River, Providence and New Bedford, on the Massachusetts shore. The barge was built around two cylindrical tanks, each 8 ft. in diameter, 67 ft. long, with a combined capacity of 52,000 gal. The barge is 76 ft. long, 21 ft. wide and 11 ft. deep. Barge and tanks have a total weight of 70 tons. The barge is divided into four compartments, with three water-tight bulkheads. The Youngstown company reports satisfactory demand for storage tanks and is operating at a capacity rate.

SCREW THREAD REPORT

National Screw Thread Commission Issues Revised Report—Changes Made and Material Added

General rearrangement of the material and the subdivision of this material into seven sections with all specifications relating to a given class of product included in a single section, mark the first revision of the 1921 progress report of the National Screw Thread Commission, recently published in Miscellaneous Publications, Bureau of Standards, No. 61. As far as practicable, the material in each section is arranged in the order of form of thread; thread series, classification and tolerances; tables of dimensions; specifications of threading tools, and gages. The more important changes in the specifications as previously published are given below.

Matters of particular importance and of general interest are included in the body of the report, and in the appendixes, which cover 25 pages, there is considerable supplementary information of both general and technical nature. Sufficient information is included in the report to permit the writing of definite and complete specifications for the purchase of screw-thread products.

Section I of the revised report is introductory and outlines the history, organization and general procedure of the commission, the term of which, as last extended, expires March 21, 1927. Section II is devoted to terminology, including definitions of terms and the symbols used.

Screw threads for bolts, machine screws, nuts, commercial tapped holes, etc., are dealt with in Section III, of 60 pages. Section IV is devoted to screw threads of special diameters, pitches and lengths of engagement, such as for automobile hub and radiator caps, threaded collars on machine tools, etc., where the diameters are larger, the pitches finer and the lengths of engagement shorter than in bolt and nut practice. National hose-coupling and fire-hose coupling threads are covered in Section V and National pipe threads in Section VI.

The next section, VII, which is devoted to wood screws, represents new material not included in the previous progress report. The last 25 pages of the report contain five appendixes, four of which represent

new material. In these data are given on the derivation of tolerances; wire methods of measurement of pitch diameter; control of accuracy of thread elements in the production of threaded products; design and construction of gages; and the future work of the commission. In addition to items mentioned above, the new material added includes specifications for threading tools, recommended tool shapes, tap dimensions, and tap drill sizes; and specifications for gages for fire-hose coupling threads.

Classes of Fit Renamed and Renumbered

The more important changes made in the specifications include the following: The classes of fit have been renamed and renumbered; the tolerance on major diameter of screws of classes 3, medium fit, and 4, close fit, have been made the same as for class 2, free fit; specifications for gages have been extensively revised, and the allowances and tolerances on fire-hose coupling threads have been revised to decrease the maximum permissible looseness. In general, any screw thread product which met the previous specifications will meet the revised specifications.

Attention is directed in the preface of the report to the fact that in so far as the same ground is covered by this revised report of the commission and by report B 1a-1924 of the American Engineering Standards Committee, the two are in substantial agreement. Criticisms and suggestions for the improvement of the report are invited.

The brief summary of the uncompleted projects to which the commission has devoted its attention is presented for the purpose of showing what progress has been made, and of inviting the cooperation of all parties interested in bringing to a satisfactory conclusion as much of this work as possible. These projects include screw threads used in the electrical industry; bolt and nut proportions and wrench openings; machine screw and stove bolt proportions; oil-well casing threads; wrench fit of threaded studs; wire gages and stock sizes of wire, metal sheet and plate; and Acme threads. Other standardization projects are tolerance specifications for pipe threads subject to high pressures; instrument tubing threads; threads on instrument screws; form of thread for valve stems; threads on condenser tube ferrules; plumbers' fine threads; and special threads, such as buttress thread, Harvey grip thread, knuckle thread, square thread, etc.

Aims and Plans of the Refractories Institute

In his talk on the aims and objects of the American Refractories Institute, the formal organization of which took place at the Mellon Institute of Industrial Research, Pittsburgh, April 14, a report of which was published in *THE IRON AGE*, April 16, J. D. Ramsey, president Elk Fire Brick Co., St. Marys, Pa., said in part:

The constitution and by-laws provide for two meetings annually, so that the producer and consumer and all connected with the industry may get together and offer suggestions as to possible improvements. It is our thought that each meeting will last two or three days.

Answering the question: "Where are we going to get the membership, and what interest have they in this movement?"—We say the manufacturer has an interest as well as superintendents, engineers, salesmen and executives, who have not had an opportunity to voice their views.

Furthermore, we find a large number of engineers who specify sizes, mixtures, difficult shapes, without regard to the cost of making them. We think that here is an opportunity for them to express their views and opinions together with others having knowledge of the subject. So we expect to gain a considerable number of members from among the engineers, securing valuable and constructive assistance from them. And here is a field that offers an opportunity to students of refractories to see how much they can improve them; for example, the designers of the kiln.

The institute already has arranged for the producer to get his kiln tested, to secure daily tests of his product, the spalling test and similar ones.

Amalgamated Association Wage Scale Calls for Higher Rates

PITTSBURGH, April 20.—While unwilling to provide details as to the wage demands to be presented to bar iron and sheet and tin plate manufacturers at the annual conference to be held next month, officials of the Amalgamated Association of Iron, Steel and Tin Workers admit that the new scale adopted at the annual convention, which will close tomorrow, calls for a substantial advance in the boiling rate for bar iron and that a change in the preamble of the sheet and tin plate mill scales will mean an average advance of about 20 per cent over the present rates. No date nor place for the conference between manufacturers and the wage scale committee of the Amalgamated association yet has been fixed, but the expectation is that it will be held at Atlantic City late next month.

The Champion Rivet Co., Cleveland, observed its thirtieth anniversary April 15. The company, of which David J. Champion is president, started its plant with one rivet machine and now is operating 63 machines, 42 in its Cleveland plant and 21 at its Western plant in East Chicago, Ill., with a total capacity of 250 tons of rivets per day.

RAILROAD EQUIPMENT

Some Locomotive Business but Little New in Car Buying

Below are given the chief items of interest in the railroad equipment field. Class I railroads on April 1 had 11,611 locomotives in need of repair, 18.1 per cent of the number on line, a decrease of 388 under the number in need of repair on March 15.

The Peabody Coal Co. has ordered 40 sets of roller bearing car trucks from the American Car & Foundry Co.

The Hatfield-Reliance Coal Co. has ordered 50 mine cars from the American Car & Foundry Co.

The Crozen Coal & Coke Co. has ordered 25 mine car trucks from the American Car & Foundry Co.

The Southern Pacific has ordered 6 steel baggage horse cars from the American Car & Foundry Co.

The United States Gypsum Co. has ordered 25 mine car bodies from the American Car & Foundry Co.

The New York, Chicago & St. Louis Railroad is inquiring for 10 switching locomotives.

The Rock Island placed 100 gondola bodies instead of 100 gondola cars with the American Car & Foundry Co., as reported last week.

The Wabash denies that it contemplates entering the market for cars.

The Tidal Oil Co. placed 60 tank cars with the General American Tank Car Corporation.

The Standard Oil Co. of Indiana is inquiring for 8 gondola cars.

The Denver & Rio Grande Western ordered 10 Mikado type engines from the Baldwin Locomotive Works.

The Nickel Plate is inquiring for 10 8-wheel switching locomotives.

Corrosion in Oil and Gas Fields

Monetary losses due to the corrosion of metal equipment used in the production of petroleum and natural gas are enormous, according to R. Van A. Mills, petroleum engineer, Department of the Interior, who has completed a study of the subject for the Bureau of Mines. It is estimated that losses from underground corrosion in the oil and gas fields of the State of Kansas alone are more than \$3,000,000 annually. In Illinois it is feared that valuable oil pools must be prematurely abandoned unless preventive measures against corrosion are adopted.

It is the salt water in the wells and in the strata through which the wells are drilled that is responsible for the extremely rapid corrosion. Corrosion is caused principally by electrolytic action which is analogous to the action in the well-known galvanic battery. The different strings of pipe, and the pumping equipment immersed in salt water in the oil well are in effect the electrodes in a huge galvanic battery. Different metals and different pieces of the same kind of metal, and even different points in the same piece of unhomogeneous metal, constitute the positive and negative electrodes in the galvanic couples, whereas the salt waters with their dissolved salts and gases constitute the electrolytes.

In efforts to stop damage to oil and gas field equipment by corrosion, numerous methods have been proposed or tried with varying success. Some of these methods are cheap and effective. The investigator has outlined the factors and conditions that influence the corrosion of both underground and surface equipment in oil and gas fields and has described methods of combating such corrosion in bulletin 233, copies of which may be obtained from the Department of the Interior, Bureau of Mines, Washington.

Reports on employment made to the United States Department of Labor showed that in both payrolls and employment there was a general increase in February over January. In every locality except the mountain district, which is of lesser importance industrially, employment advanced more than 1 per cent. Increases in payroll were more pronounced, ranging from 1.2 per cent in New England to 13 per cent in the Central West.

SEATTLE PRICES LOWER

Labor Well Employed and Improvement in Business Expected

SEATTLE, April 16.—Local conditions in the steel trade are fully as quiet now as they were last fall before the Presidential election. Prices have declined to some extent on all steel products, and there is no tendency on the part of jobbers or consumers to anticipate needs, buying being light and only to meet actual needs. There is nothing in sight to indicate that a general depression is coming. Money is plentiful, labor is well employed at a high wage, and building operations on the Coast are active. In Seattle this is particularly true, building permits issued here in March totaling over \$3,500,000, or more than \$1,250,000 larger than in March of last year.

It is the belief here that from this time on there will be gradual betterment in the steel trade, as with the coming of spring and good weather, there will be resumption of work in many lines of trade that were held back by the very cold weather and deep snows of the past winter. There is no let up in new building here, and local consumption of building materials this year will be heavier than last year, which set a new record. Carpenters have just been granted an increase of \$1 per day in their pay, and from April 1 will receive \$9 per day of eight hours.

Bids were to have been opened on April 21 for over 5000 tons of 26-in. to 36-in. plates for the water line at Vancouver, B. C., but this has been postponed until May 6. This line will be either riveted or lock bar pipe, likely the former, and it is expected that some low prices will be made, as it is the largest plate job that has come out in some time. Practically all the large Eastern mills that can roll the sizes wanted are bidding on the plates. The general plate demand is quiet, and prices for tank quality, ¼-in. and heavier, range from 2.45c. to 2.50c. delivered here. These prices are equal to about 1.75c. to 1.80c., Pittsburgh mill. The large Pacific Coast cities have abandoned the use of wooden pipe in laying water lines, and are using steel entirely. Many old wooden water lines were lifted in Seattle last summer and fall, most of them being in very bad condition, and were replaced with either steel or cast iron lines.

The structural steel trade here is very quiet and no large jobs are in immediate sight. The city of Everett, Wash., is to open bids in early June for about 4000 tons for a State highway bridge, but no bids have yet been asked by the commissioners. Plain material is ruling fairly strong at 2.50c. to 2.55c. delivered, but no large jobs have come out for some time to test the market.

The local sheet trade is very quiet in demand and prices seem to be somewhat demoralized. Galvanized sheets have sold here at prices that mean 4.40c. at Pittsburgh mill, and black have sold at very close to prices that mean 3.25c., Pittsburgh.

The Seattle street railway lines are laying considerable new trackage, desiring to get their equipment in the best possible shape before the coming influx of tourists, and are buying a good deal of track materials. The local offices of the Bethlehem Steel Corporation recently took orders for about 500 tons of frogs, switches and other track materials for city street car lines, and other business is pending.

Jobbing prices on steel products are fairly steady, but consumers are buying only what they need, being confident that there will be no delay in getting deliveries promptly when the materials are needed. Several of the larger local jobbers say their trade in March was a little better than in the previous month, and they look for larger trade in April, which so far has been ahead of the same time last month.

There has been a decline in prices of scrap, due largely to the fact that the local Pacific Coast Steel Co. which is much the largest single buyer, is not running its bar and plate mills full, and is consequently buying less scrap. Cast iron scrap has sold lately at about \$17 per gross ton, delivered at point of consumption.

MARCH STRUCTURAL SALES

First Quarter's Booking 10 Per Cent Under Those of Same Period Last Year

WASHINGTON, April 21.—Bookings of fabricated structural steel in March of this year, reported by 174 firms with a capacity of 244,155 tons, amounted to 172,449 tons, or 71 per cent of capacity, according to the Bureau of Census. This compares with bookings of 149,107 tons, or 58 per cent of capacity, by 190 firms with a capacity of 252,910 tons in February. Computed bookings in March were 205,900 tons, while shipments were 223,300 tons, or 77 per cent of capacity. This compares with computed bookings of 171,100 tons in February, when shipments were 63 per cent of capacity, computed tonnage being 182,700 tons. For the first quarter of this year computed bookings were 545,200 tons, while computed shipments were 577,100 tons. This compares with computed bookings of 609,000 tons and computed shipments of 527,800 tons for the corresponding quarter of 1924.

Week's Awards 25,000 Tons, with New Inquiries Appearing for 24,000 Tons

With bookings of nearly 25,000 tons for the past week, structural steel awards average as much so far in April as in all of March. Purchases for the railroads were conspicuous, though calling for only 22 per cent of the total. Public work took 40 per cent. New inquiries amounted to 24,000 tons. Awards include:

Telephone building, South Orange, N. J., 600 tons, to Eidlitz & Ross.
Loft building, 282 Seventh Avenue, New York, 600 tons, to Hay Foundry & Iron Works.
Loft building, 41 West Fifty-Seventh Street, New York, 300 tons.
Manufacturing building, near Hartford, Conn., 150 tons, to American Bridge Co.
Cement plant, Glens Falls, N. Y., 150 tons, to American Bridge Co.
Pennsylvania Railroad, bridge, 125 tons, to Belmont Iron Works.
Erie Railroad, bridge, 300 tons, to McClintic-Marshall Co.
Consolidated Gas Co., coal handling equipment at Hunt's Point, New York, 1000 to 2000 tons, to Brown Hoisting Machinery Co.
Pennsylvania Railroad, bridge, 125 tons, to American Bridge Co.
Baltimore & Ohio Railroad, bridge, 200 tons, to Mount Vernon Bridge Co.
Delaware & Hudson Railroad, bridge, 500 tons, to an unnamed fabricator.
Highway bridge, St. Augustine, Fla., 1600 tons, to Virginia Bridge & Iron Co.
Subway construction in Central Park West, New York (J. F. Cogan Co., general contractor), 4600 tons, to American Bridge Co.
Seaboard Air Line, bridges, 650 tons, to Virginia Bridge & Iron Co.
Boston & Maine Railroad, bridge at Athol, Mass., 140 tons, to Boston Bridge Works.
Hospital addition, Nashua, N. H., 100 tons, to New Hampshire Structural Steel Co., Manchester, N. H.
Elks Club, Buffalo, 700 tons, to Buffalo Structural Steel Co.
Koppers Co., Pittsburgh, coke plant at Woodlawn, Pa., 800 tons, to Jones & Laughlin Steel Corporation.
Utica Hotel, Utica, New York, addition, 200 tons, to Utica Steam Engine & Boiler Works.
Grand Trunk Railway, Lansing, Mich., bridge, 250 tons, to American Bridge Co.
Heights high school, Cleveland Heights, Ohio, 1500 tons, to Forest City Structural Co.
Nickel Plate Bridge Co., Bloomington, Ill., 400 tons, to Rochester Bridge Co.
College Hill School, Cincinnati, 200 tons, to Schreiber & Sons Co.
City of Tampa, Fla., two bascule spans, 950 tons, to Lakeside Bridge & Steel Co., Milwaukee.
Louisiana Power Co., transmission towers, 200 tons, to Lakeside Bridge & Steel Co.
Charleston, S. C., 2,000,000-gal. self-supporting elevator water tank, 600 tons, to Chicago Bridge & Iron Works.
Transmission towers and poles for export, 700 tons, to Bates Expanded Steel Truss Co.
Whellon, Utah, tanks and pipe lines, 1400 tons, to unnamed fabricator.

Chicago, Burlington & Quincy, South Sixth Street Viaduct, St. Joseph, Mo., 305 tons, to St. Joseph Structural Steel Co.
Winnebago County, Ill., two 163 ft. spans for section 15C of Route 5, 238 tons, to St. Louis Structural Steel Co.
Fulton County, Ill., bridge for Route 9, sections 39C and 39D, 166 tons, to St. Louis Structural Steel Co.
Lawrence County, Ill., bridge, Route 12, section 1, 1B, 1C, 117 tons, to St. Louis Structural Steel Co.
Sunset Theater, San Francisco, 200 tons, to Herrick Iron Works.
South Hill Street Garage, Los Angeles, addition, 450 tons, to Baker Iron Works.
Theater, Western Avenue and Tenth Street, Los Angeles, 190 tons, to Union Iron Works.
Pacific Gas & Electric Co., Potrero plant, San Francisco, two 40,000-bbl. and one 25,000-bbl. tanks, 390 tons, to Western Pipe & Steel Co., and four floating tank covers, 150 tons, to Chicago Bridge & Iron Co.
Associated Oil Co., San Francisco, 18 20,000-gal. tanks, 102 tons, to Steel Tank & Pipe Co.
Standard Oil Co., San Francisco, small tanks, 125 tons, to Steel Tank & Pipe Co.
Tampico, Mex., Galveston, Tex., and Tampa, Fla., 100 tons for pipe lines, to Pacific Coast Engineering Co.
Central Mendocino Power Co., Willits, Cal., pipe line, 118 tons, to Western Pipe & Steel Co.
Reading Railroad, shops at Reading, Pa., 2500 tons, to McClintic-Marshall Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

Vincent Astor office building, Fifth Avenue at Thirty-Third Street, New York, 2000 tons.
J. Cheln & Co., toy factory at Harrison, N. J., 500 tons.
Staten Island Hospital, St. George, Staten Island, New York, 500 tons.
Garage for Arthur Brisbane, 102nd Street, New York, 1000 tons.
Telephone building, Springfield, Mass., 300 tons.
Women's Home of Detention, City of New York, Sixth Avenue at Thirtieth Street, New York, 1000 tons.
New York Central, bridges, 700 tons.
Pennsylvania Railroad, bridge, 200 tons.
Hebrew Hospital, Baltimore, 800 tons.
Standard Oil Co. of New Jersey, miscellaneous structural work, 350 tons.
Federal Land Bank, Louisville, 200 tons.
Louisville & Nashville Railroad, bridge at Knoxville, Tenn., 300 to 400 tons.
Indiana State Highway Commission, Indianapolis, highway bridge at Rogers, Ind., 500 tons.
Kentucky State Highway Commission, Frankfort, Ky., four highway bridges, 400 tons.
Main Street Bridge at Galeville, Wis., 175 tons, bids close April 29.
Minneapolis, auditorium and orchestra hall, 5800 tons, instead of 2600 tons, as previously reported, general contract bids to be taken April 27.
Humble Oil Co., Houston, Tex., oil storage tanks, 1000 tons.
Texon Oil & Land Co., Texon, Tex., oil storage tanks for Southwestern location, 700 tons.
Physicians' & Dentists' Building, Stockton, Cal., 200 tons.
Yreka Bridge, Yreka, Cal., 100 tons.
Hotel, Miami, Fla., 2500 tons.
Catholic Church, Philadelphia, 400 tons.
Catholic high school, Philadelphia, 700 tons.
Michigan Central Railroad, bridge work, 11,000 tons.

Large Scrap Production of Automobile Companies

DETROIT, April 21.—The market on old material continues in its soft condition, with scrap production high in the district in keeping with heavy automotive schedules for the month, which promise to carry at least through May. No large sales have been reported.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	\$12.00 to \$14.00
Borings and short turnin	10.00 to 11.00
Long turnings	10.00 to 11.00
No. 1 machinery cast	15.00 to 17.00
Automobile cast	20.00 to 21.00
Hydraulic compressed	11.00 to 12.00
Stove plate	14.50 to 15.50
No. 1 busheling	11.00 to 12.00
Sheet clippings	9.00 to 10.00
Flashings	10.00 to 11.00

OPEN-HEARTH PRACTICE

Committee of Independent Steel Companies to Exchange Operating and Other Experiences

The formation of an open-hearth committee of the independent steel companies was the outcome of a conference held at the William Penn Hotel, Pittsburgh, April 15 and 16, sponsored and brought about by the American Institute of Mining and Metallurgical Engineers. Steel works executives and open-hearth superintendents representing 22 companies in the Middle West, the East and the South, attended the conference, at the end of which came the general expression that a definite step forward in cooperative effort had been taken in the direction of an exchange of operating ideas, standardization of furnaces, practices and of materials.

J. V. W. Reynders, president of the institute, presided at the conference and L. B. Lindemuth, of the consulting engineering firm of Carney and Lindemuth, New York, who is secretary of the iron and steel section of the institute, was secretary. Another conference will be held in about six months and it is proposed thereafter to hold them every six months.

In a sense, this movement parallels a practice that

the United States Steel Corporation has followed for years. It will be different to the extent that it is an effort at cooperation among a great many more individual units of the steel industry and the chance for divergence of opinion naturally is greater. A general committee composed of E. A. Witworth, Bourne-Fuller Co., Cleveland; W. A. Maxwell, Inland Steel Co., Chicago; L. F. Reinartz, American Rolling Mill Co., Middletown, Ohio; A. R. Maxwell, Pittsburgh Steel Co., Pittsburgh; A. W. Smith, Youngstown Sheet & Tube Co., Youngstown, and L. B. Lindemuth, Carney & Lindemuth, New York, will conduct the affairs of the new organization.

Subcommittees composed of open hearth superintendents will be selected to handle such matters as the size and kinds of brick, molds, raw material, etc., and in the direction of standardization, a request is to be made upon companies having furnaces of odd construction for blueprints of such furnaces and for a word as to their advantages.

Papers were presented by L. B. Lindemuth on "Furnace Operation," by R. S. Poister, Norristown, N. J., whose subject was "Pit Practice," by L. F. Reinartz, on "Open-Hearth Fuels," and by C. H. Hunt, Weirton Steel Co., Weirton, W. Va., on "Furnace Construction." H. C. Thomas, Alan Wood Iron & Steel Co., Philadelphia, and A. R. Maxwell, Pittsburgh Steel Co., as well as Mr. Reynders, spoke on the advantages of the movement.

PURCHASING AGENTS

National Association Convention and Exhibition in Milwaukee Next Month

The National Association of Purchasing Agents will hold its tenth annual international convention in Milwaukee, May 25 to 28, inclusive, and in connection with it an exhibition known as the Informashow. For the exhibition the Milwaukee Auditorium has been obtained and in the upper floor of the building are meeting halls for the various sessions and conferences.

The opening session will occur on the morning of May 25 with presentation of reports of officers. One of the sectional meetings for the afternoon of that day will be devoted to non-ferrous metals, with E. W. Knight, Frankel Brothers, Toronto, presiding. On the evening of that day a dinner meeting will resolve itself into a fuel conference.

On the morning of May 26 there will be a general meeting on scrap specifications, and one address scheduled is "The Goal and the Progress Toward It," by Dr. A. S. McAllister, engineer-physicist, United States Department of Commerce. One of the sectional meetings for the afternoon, which will be presided over by George C. McClure of the American Rolling Mill Co., Middletown, Ohio, and chairman of the national iron and steel committee of the association, will consider: the "Need for a Standardized Scrap Purchase Contract," speaker to be selected; "Scrap Specifications for Iron Rolling Mills and Forge Fires," E. W. Krueger, speaker; and what the iron and steel committee can do this year, speaker to be selected. One of the dinner conferences that day, with Mr. McClure presiding, will provide for three addresses as follows: "Special Uses for Malleable Castings," by W. W. MacMillan; "What a Purchasing Agent Should Know in Purchasing Tool Steel," speaker to be selected; "Steel Situation Today," by W. W. Macon, managing editor THE IRON AGE.

The program for Wednesday, May 27, includes, in the afternoon, the address by R. M. Hudson, chief of the division of simplified practice, Department of Commerce, on "How the Elimination of Waste Affects the Purchaser." At 3.30 p. m. there will be a general forum on business conditions and commodity survey.

The concluding convention has as its topic, "Ways of Reducing Purchase Overhead," to be taken up under the following six subdivisions:

1. A Specific Case. 2. How much time should be devoted daily to reading newspapers and trade papers

to keep posted on market conditions, and should this be done in office hours? 3. What should a purchasing department cost in per cent of goods purchased, and should stores operation be included in purchase overhead? 4. What is the minimum number of records a purchasing department can have and still be efficient? 5. How many salesmen call? How many times a year do the same concerns send salesmen? How many are interviewed? How many are not? How many of them call endeavoring to sell material for which the prospective purchaser has no use? How many do you buy from? 6. How many average size purchase orders can be typed in an hour?

The Physical Chemistry of Steel-Making Processes

A joint general discussion will be held by the Iron and Steel Institute and the Faraday Society on Monday, June 8, 1925, from 3:30 p. m., to 7:30 p. m., at the Institution of Civil Engineers, Great George Street, London. The following provisional program has been arranged:

Introductory address, by Sir Robert Hadfield.

"Theory of Equilibria in Steel Furnaces," by Prof. C. H. Desch.

"Balance Reactions in Steel Manufacture," by A. McCance.

"Slag Reactions," by P. MacNair.

"Reactions of the Basic Furnace," by T. P. Colclough.

"Function of Ferric Oxide in the Acid and Basic Open-Hearth Processes," by J. H. Whiteley.

"Chemical Reactions in the Basic Electric Process in the United States," by F. T. Sisco.

"Physical and Chemical Phenomena from Melt to Ingot," by A. L. Feld.

Steel Treathers Spring Sectional Meeting

The annual spring sectional meeting of the American Society for Steel Treating is to be held at Schenectady, N. Y., May 28, 29 and 30, under the auspices of the local chapter. Headquarters will be at the new Hotel Van Curler. Besides an interesting list of technical papers, several trips for the inspection of some of the local plants have been arranged. The technical sessions are to be held during the morning of Thursday, May 28, and the evening of Friday, May 29, with one session scheduled at the Research Laboratory of the General Electric Co., at 4:30 p. m., of the same day.

Two of the papers already announced are: "Results of Examination of Metals with the X-ray," by Col. Tracy C. Dickson, commanding officer, Watertown Arsenal, and "Manufacture of Guns by the Cold Working Process," by Dr. F. C. Langenberg, director of laboratories, Watertown Arsenal, Watertown, Mass.

Besides a visit to the plant of the Ludlum Steel Co., at Waterliet, N. Y., Thursday afternoon, May 28, the plant of the American Locomotive Works will be visited Friday morning, followed by a luncheon and a trip through the works at the invitation of the General Electric Co. For Decoration Day, Saturday, May 30, a trip to Lake George has been scheduled. A banquet is to be held Thursday evening at the Hotel Van Curier, with addresses by Dr. W. R. Whitney, director, Research Laboratory, General Electric Co., and R. B. McColl, manager, the American Locomotive Works.

To Form Shippers' Advisory Board

To form a shippers' regional advisory board for the New England States, a call has been issued for a meeting in Boston on May 8 at the Copley Plaza Hotel. Among those selected by the car service division of the American Railway Association as a nucleus for the organization committee are the following: Col. Samuel M. Nicholson, president Nicholson File Co., Providence, R. I.; Henry D. Sharpe, president Brown & Sharpe Mfg. Co., Providence; S. H. Bullard, president Bullard Machine Tool Co., Bridgeport, Conn.; E. Kent Hubbard, president Manufacturers' Association of Connecticut, Inc., Hartford, Conn.; C. F. Hollister, treasurer American Brass Co., Waterbury, Conn.; R. W. Poteet, traffic manager Stanley Works, New Britain, Conn., and A. D. Fiske, traffic manager American Steel & Wire Co., Worcester, Mass.

G. A. Richardson Lectures on Steel at Pacific Coast Meetings

SAN FRANCISCO, April 15—Nearly 300 manufacturers, fabricators, jobbers and others interested in the production, distribution and use of steel attended a lecture given by George Atwell Richardson, manager technical publicity department, Bethlehem Steel Co., who spoke on "Steel—the Giant Industry" at the Palace Hotel, here, last night. Mr. Richardson outlined the evolution of the modern steel mill and spoke in detail about some of the problems that arise daily in the use of steel by modern industry.

Previous to coming to San Francisco Mr. Richardson delivered two lectures in Los Angeles, one before the members of the Metal Trades Manufacturers' Association, and the other before the Purchasing Agents Association of Southern California. He will deliver lectures at Portland, Ore., and at Tacoma, Seattle, and Spokane, Wash., before returning to the East.

May Meeting of the Iron and Steel Institute

The annual meeting of the Iron and Steel Institute will be held May 7 and 8 at the Institution of Civil Engineers, Great George Street, Westminster, London. The technical program is as follows:

"Effect of Grain upon the Fatigue Strength of Steels," by L. Aitchison and L. W. Johnson.

"Method for Reducing the Percentage of Phosphorus in Swedish Iron by Diminishing the Phosphorus in the Charcoal," by H. von Eckermann.

"On the Structure of Quenched Carbon Steels," by B. D. Enlund.

"Estimation of Phosphorus in the Presence of Vanadium," by G. Watson Gray and C. D. Garbutt.

"Temper-Brittleness of Steel; Susceptibility to Temper-Brittleness in Relation to Chemical Composition," by R. H. Greaves and J. A. Jones.

"Note on Nitrogen as a Possible Factor in Temper-Brittleness," by W. T. Griffiths.

"Progress in British Rolling-Mill Practice," by T. W. Hand.

"Flakes" or "Hair Cracks" in Chromium Steel, with

a Discussion on 'Shattered Zones' and 'Transverse Fissures' in Rails," by A. Hultgren.

"Peeling" in White Heart Malleable," by D. H. Ingall and H. Field.

"Influence of Gases at High Temperatures upon Iron, with Special Reference to the Formation of Blowholes," by A. G. Lobley and C. L. Betts.

"Some Notes on the Use of a Diamond Pyramid for Hardness Testing," by R. L. Smith and G. E. Sandland.

"Detection of Strain in Mild Steels," by T. Henry Turner and J. D. Jevons.

"Strain Detection in Mild Steel by Special Etching," by J. D. Jevons.

"Observations on Martensite and Troostite," by J. H. Whiteley.

At the meeting Thursday, the newly elected president, Sir Frederick Mills, will be inducted into office and the presentation of the Bessemer medal will be made to Prof. Thomas Turner.

It is announced that the autumn meeting will be held in Birmingham, England, Sept. 9, 10 and 11.

COMING MEETINGS

April

American Welding Society. April 22, 23 and 24. Annual meeting. Engineering Societies Building, New York. Miss M. M. Kelly, 22 West Thirty-ninth Street, New York, secretary.

American Electrochemical Society. April 23, 24 and 25. Annual spring meeting. Hotel Niagara, Niagara Falls. Dr. Colin G. Pink, Columbia University, New York, secretary.

National Supply and Machinery Distributors' Association. April 27, 28 and 29. Annual Convention. Ambassador Hotel, Atlantic City. George A. Fernley, 505 Arch Street, Philadelphia, secretary-treasurer.

Southern Metal Trades Association. April 28 and 29. Annual convention, San Antonio. W. E. Dunn, Jr., Atlanta, secretary.

New England Trade Conference under auspices of the Chamber of Commerce. April 29 and 30. Providence.

American Institute. April 27 to May 2. Exposition of Inventions. Engineering Societies Building, New York. Headquarters of institute, 47 West Thirty-fourth Street, New York.

May

National Association of Sheet and Tin Plate Manufacturers. May 4 to 7 inclusive. Third annual convention for administrative, commercial and operating executives of sheet steel companies. Hotel Greenbrier, White Sulphur Springs. W. W. Lower, Oliver Building, Pittsburgh, secretary-treasurer.

American Gear Manufacturers' Association. May 6 to 9 inclusive. Ninth annual meeting. William Penn Hotel, Pittsburgh. T. W. Owen, 2443 Prospect Avenue, Cleveland, secretary.

Society of Industrial Engineers. May 6 to 8. Twelfth National convention, Hotel Winton, Cleveland.

Iron and Steel Institute. May 7 and 8. Annual meeting at headquarters of the Institution of Civil Engineers, Great George Street, London, England. G. L. Lloyd, Victoria Street, London, secretary.

Southern Supply and Machinery Dealers' Association and American Supply and Machinery Manufacturers' Association. May 6, 6 and 7. Joint annual convention, Atlanta-Biltmore Hotel, Atlanta. F. D. Mitchell, 1819 Broadway, New York, secretary-treasurer of American Association and Alvin M. Smith, Smith-Courtney Co., Richmond, Va., secretary-treasurer of Southern Association.

Southern Exposition. Two weeks beginning May 11, at Grand Central Palace, New York. William G. Sirrine, Greenville, S. C., president.

Taylor Society. May 14 to 16. Spring meeting. University of Michigan, Ann Arbor, Mich. Dr. H. S. Person, 29 West Thirty-ninth Street, New York, managing director.

American Iron and Steel Institute. May 22. General meeting. New York. E. A. S. Clarke, 40 Rector Street, New York, secretary.

Iron and Steel Markets

PRICES MORE YIELDING

A Greater Reduction in Steel Output This Week

Freight Rate Decision Complicates Price Situation in Middle West

Reduction in steel output and recession in prices of key products are rather more pronounced. In the effort of steel makers to find a trading level of prices, bars and structural steel in ordinary lots are now at 2c., Pittsburgh, with wire products back to the November basis, while sheets are weaker, after a decline of \$2 to \$4 a ton from the prices of late 1924.

The Carnegie Steel Co. has dropped from 85 per cent to 75 per cent in its rate of ingot production, while independent companies at Pittsburgh and Youngstown are close to 70 per cent. The Steel Corporation as a whole is now below 85 per cent and the average for the industry is put at 77, as against 92 for the actual rate of March.

With the putting out of three Carnegie and two independent blast furnaces, and the expected stopping of two other furnaces, the active list in the Pittsburgh and nearby districts will show 85 as against 105 at the beginning of March. A Cleveland furnace has gone out, also one at Buffalo and another at South Chicago.

New buying is put at 85 to 90 per cent of current shipments of leading companies having varied lines of products. Quiet as the past two weeks have been, not a few mills have had better bookings than in the same period in March. Consumers are following market changes closely, but their operations in some cases are calling for more rather than less steel.

Bookings of fabricated structural steel in the first quarter of the year were 545,000 tons, or 10 per cent under those for the same period last year. Current purchases are holding up well. Of 25,000 tons covered in the past week, numerous railroad bridges were conspicuous, taking 22 per cent of the total, though public work accounted for 40 per cent.

Unusually close approach to theoretical capacity is indicated in March sheet mill operations, and the resultant cost saving has doubtless been a factor in speeding the price decline. Sales in March were larger than in either January or February. Production was $2\frac{1}{2}$ per cent higher than in February, but the increase in sales was nearly 12 per cent.

The American Sheet & Tin Plate Co. has reaffirmed the present tin plate price of \$5.50 for third quarter, on ordinary contracts. This is still the best employed branch of the industry, signs pointing to a record tin plate year.

As in 1924, the imports of foreign cotton ties to Gulf ports this year are likely to be small, domestic mills continuing last year's innovation of quoting f.o.b. Southern ports instead of f.o.b. Pittsburgh.

Sellers of foreign bars and structural shapes have found only a limited market thus far at At-

lantic and Gulf ports. The Houston, Texas, building for which 3500 tons of Belgian steel was reported sold, was finally awarded to the Steel Corporation.

A French mill has taken about 8000 tons of 100-lb. rails for the South Manchuria Railway at close to \$34.25 c.i.f. Darien.

At least one German steel company has sent representatives to the United States to buy steel scrap. Prices quoted would mean about \$24 a ton delivered at German mill. As this is not many dollars a ton below the prices at which German steel for export is being sold it seems doubtful that business will develop. Some American scrap is moving to Italy from Southern ports.

The downward trend of pig iron prices is more marked. A reduction of \$1 in the Chicago district has been followed by some increase in demand, but concessions in the East, Cleveland and elsewhere have had little, if any, effect upon buying. Silvery irons have been reduced \$3.

Advances in base rates will be asked by sheet mill and bar iron workers at the wage conferences next month, evidently in the hope of retaining existing scales. Attention has been drawn also to the labor situation at Lake Superior iron mines. With the expected maintenance of wages by the Steel Corporation, the closing down of high cost mines, in view of low ore prices, is looked for rather than a wage readjustment at merchant properties.

The Interstate Commerce Commission's decision slightly reducing freight rates on finished steel from Pittsburgh to St. Louis and Illinois and Indiana points, while materially raising rates from Chicago to the same districts, finds few friends. Pittsburgh producers are given \$1.80 a net ton greater leeway at St. Louis, in meeting Chicago competition, but expected considerably more. Western producers see their radius of operation limited by the higher short-haul rates. Consumers in affected territory look for a recasting of their own competitive lines.

Pittsburgh

Tin Plate the Brightest Spot in the Market—Readjustment Continues

PITTSBURGH, April 21.—The downward trend of the steel market continues and is slightly more pronounced than was true recently. The effort of manufacturers to find a trading level of prices has resulted in the past week in the disappearance of what had remained of the advances since last November in wire products, a recession to a 2c. level on bars and structural shapes and still lower prices on sheets, the market for which is weak even at a decline of from \$2 to \$4 from the prices of late last year. Sheet buyers became well filled up by reason of the heavy production over the first three months of this year and so much efficiency has been developed in sheet production that costs naturally have been lessened. The tendency has been to pass along this benefit in an effort to maintain fairly high sheet mill operations.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Apr. 21, 1925	Apr. 14, 1925	Mar. 24, 1925	Apr. 22, 1924
No. 2X, Philadelphia	\$22.51	\$23.26	\$24.26	\$22.76
No. 2, Valley Furnace	20.00	20.00	21.00	21.50
No. 2, Southern, Cin'ti	24.05	24.05	24.05	26.05
No. 2, Birmingham, Ala.	20.00	20.00	20.00	22.00
No. 2 foundry, Chicago	22.00	23.00	24.00	24.00
Basic, del'd eastern Pa.	22.75	22.75	23.75	21.50
Basic, Valley furnace	20.00	20.00	21.00	21.50
Valley Bessemer, del. P'gh.	22.76	22.76	23.76	24.26
Malleable, Chicago	22.00	23.00	24.00	24.00
Malleable, Valley	20.50	20.50	21.50	21.50
Gray forge, Pittsburgh	21.26	21.26	22.26	22.76
L. S. charcoal, Chicago	29.04	29.04	29.04	29.15
Ferromanganese, furnace	115.00	115.00	115.00	107.50

Rails, Billets, Etc., Per Gross Ton:	Apr. 21, 1925	Apr. 14, 1925	Mar. 24, 1925	Apr. 22, 1924
O.-h. rails, heavy, at mill	\$43.00	\$43.00	\$43.00	\$43.00
Bess. billets, Pittsburgh	35.50	35.50	37.00	40.00
O.-h. billets, Pittsburgh	35.50	35.50	37.00	40.00
O.-h. sheet bars, P'gh.	37.00	37.00	38.00	41.00
Forging billets, base, P'gh.	40.50	40.50	42.50	45.00
O.-h. billets, Phila.	41.17	41.67	41.67	45.17
Wire rods, Pittsburgh	46.00	48.00	48.00	51.00
Cents				
Skelp, gr. steel, P'gh, lb.	2.00	2.00	2.10	2.25
Light rails at mill	1.75	1.80	1.80	2.00

Finished Iron and Steel, Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.22	2.28	2.28	2.52
Iron bars, Chicago	2.10	2.10	2.10	2.35
Steel bars, Pittsburgh	2.00	2.10	2.10	2.30
Steel bars, Chicago	2.10	2.20	2.20	2.35
Steel bars, New York	2.34	2.44	2.44	2.64
Tank plates, Pittsburgh	2.00	2.00	2.00	2.30
Tank plates, Chicago	2.20	2.30	2.30	2.45
Tank plates, New York	2.34	2.34	2.34	2.54
Beams, Pittsburgh	2.00	2.10	2.10	2.30
Beams, Chicago	2.20	2.30	2.30	2.45
Beams, New York	2.34	2.34	2.44	2.59
Steel hoops, Pittsburgh	2.40	2.40	2.40	2.90

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Sheets, Nails and Wire, Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh.	3.90	3.40	3.40	3.70
Sheets, black, No. 28, Chicago dist. mill	3.60	3.60	3.70	...
Sheets, galv., No. 28, P'gh.	4.50	4.50	4.60	4.85
Sheets, galv., No. 28, Chicago dist. mill	4.70	4.70	4.85	...
Sheets, blue, 9 & 10, P'gh.	2.50	2.60	2.70	2.85
Sheets, blue, 9 & 10, Chicago dist. mill	2.60	2.70	2.80	...
Wire nails, Pittsburgh	2.75	2.85	2.85	3.00
Wire nails, Chicago dist. mill	2.85	2.95	2.95	...
Plain wire, Pittsburgh	2.50	2.60	2.60	2.75
Plain wire, Chicago dist. mill	2.60	2.70	2.70	...
Barbed wire, galv., P'gh.	3.45	3.55	3.55	3.80
Barbed wire, galv., Chicago dist. mill	3.55	3.65	3.65	...
Tin plate, 100 lb. box, P'gh	\$5.50	\$5.50	\$5.50	\$5.50

Old Material, Per Gross Ton:	Apr. 21, 1925	Apr. 14, 1925	Mar. 24, 1925	Apr. 22, 1924
Carwheels, Chicago	\$16.00	\$16.00	\$16.50	\$16.50
Carwheels, Philadelphia	17.50	18.00	18.50	17.00
Heavy steel scrap, P'gh.	17.00	17.00	18.00	15.00
Heavy steel scrap, Phila.	14.50	14.50	16.00	15.00
Heavy steel scrap, Ch'go.	14.75	14.75	16.00	13.50
No. 1 cast, Pittsburgh	17.50	18.00	18.00	18.00
No. 1 cast, Philadelphia	17.00	17.50	18.00	17.00
No. 1 cast, Ch'go (net ton)	17.50	17.50	18.00	18.00
No. 1 RR. wrot. Phila.	17.50	18.00	19.00	17.50
No. 1 RR. wrot. Ch'go (net)	13.00	13.00	14.50	12.25

Coke, Connellsville, Per Net Ton at Oven:	Apr. 21, 1925	Apr. 14, 1925	Mar. 24, 1925	Apr. 22, 1924
Furnace coke, prompt	\$2.00	\$2.00	\$2.25	\$3.75
Foundry coke, prompt	4.00	4.00	4.00	4.75

Metals, Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	13.37 1/2	13.75	14.37 1/2	12.75
Electrolytic copper, refinery	13.12 1/2	13.37 1/2	14.00	13.25
Zinc, St. Louis	8.80	7.12 1/2	7.30	6.12 1/2
Zinc, New York	7.15	7.47 1/2	7.65	6.47 1/2
Lead, St. Louis	7.40	7.70	8.65	7.62 1/2
Lead, New York	7.75	8.05	8.90	7.90
Tin (Straita), New York	52.50	50.00	53.62 1/2	49.50
Antimony (Asiatic), N. Y.	11.87 1/2	13.50	14.00	9.87 1/2

THE IRON AGE Composite Prices

April 21, 1925, Finished Steel, 2.474c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 83 per cent of the United States output of finished steel.	April 14, 1925, 2.531c. March 24, 1925, 2.531c. April 22, 1924, 2.696c. 10-year pre-war average, 1.889c.
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April 21, 1925, Pig Iron, \$20.75 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.	April 14, 1925, \$21.04 March 24, 1925, 21.88 April 22, 1924, 21.96 10-year pre-war average, 15.72
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High	Low
1923 2.824c., April 24 \$30.86, March 20	1925 2.474c., April 21 \$20.75, April 21
1924 2.789c., Jan. 15 \$22.88, Feb. 26	1924 2.460c., Oct. 14 \$19.21, Nov. 3
1925 2.560c., Jan. 6 \$22.50, Jan. 13	1923 2.446c., Jan. 2 \$20.77, Nov. 20

To bring about a closer relation between production and demand, steel plant operations have been rather sharply curtailed in the past week. The Carnegie Steel Co. has dropped from an ingot production rate of about 85 per cent capacity to 75 per cent and the average of independent company operations now is not above 70 per cent, the general average of the greater Pittsburgh area being close to the lowest figures. Three additional Carnegie Steel Co. blast furnaces have suspended, as has one stack of the Pittsburgh Steel Co., while the Shenango Furnace Co. has banked a furnace and the Sharon Steel Hoop Co. has ordered a cessation of coke shipments, which means an early suspension of its furnace. The Youngstown Sheet & Tube Co. will probably

stop making iron in one of its active stacks shortly. These changes leave only 85 out of 136 furnaces in this and nearby districts in production as compared with 105 at the beginning of March.

The American Sheet & Tin Plate Co., as had been generally expected, has reaffirmed present prices for tin and terne plate on third quarter business. This branch of the industry still stands out as the brightest spot in the market, and with the packing crops making good headway, the signs still point to a record tin plate year. Good as this line is, however, the demand is not proving a strain upon capacity.

The automobile industry is a steady consumer of steel but is still pursuing a policy of buying against

requirements as they develop, rather than in advance of them. This means that takings by that industry are going into consumption instead of into stock and in a general way that is the case with purchases from other sources at present.

In the primary materials the situation still is dull and depressed. Pig iron consumers are taking on only such tonnage as they must have and there are only a few that seem to need any iron. In not a few cases, melters have more iron than they need and are holding back shipping instructions. Curtailment of coal and coke production is without effect either upon prices or the supply. The fuel situation, indeed, is a very gloomy one from the viewpoint of operators, particularly those operating mines under agreement with the United Mine Workers of America. The latter appear to have no contracts and it is probable that the next 30 days will see a very general suspension of union mines in western Pennsylvania and in Ohio.

All that sustains the scrap market is that producers do not seem willing to let go of it at today's prices if they have storage space.

Pig Iron.—There has been rarely a time when there was so little interest in the market. Although the producers indicate a willingness to meet buyers' price views, it is almost impossible to get consumers to make an offer. Business is confined strictly to small lots that the consumers find themselves in need of and it is doubtful whether the week's business has exceeded 1000 tons. One producer sold 250 tons of malleable iron for shipment to Muncie, Ind., at \$20.50 and made three sales of Bessemer iron aggregating 200 tons at \$21, Valley furnace. These are all that quotations are based on. Another reports the week's business as four carloads of foundry iron to four different consumers, the price being \$20, Valley furnace, for No. 2. The fact that carload lots of foundry iron can be bought at \$20 makes higher quotations merely asking prices. The N. & G. Taylor Co., Cumberland, Md., is asking price on 1000 tons of basic iron for shipment at the rate of 200 tons a week beginning April 27. This constitutes the only stir in the market for that grade, which although quoted at \$20, cannot be sold at that figure.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.76 per gross ton:

Basic	\$20.00
Bessemer	21.00
Gray forge	19.50
No. 2 foundry	20.00
No. 3 foundry	19.50
Malleable	20.50
Low phosphorus copper free	28.50

Ferroalloys.—There is no change in the situation locally. Business is light all along the line, because consumers are well covered by contract and steel plant operation, being on a lighter scale than they were recently, such supplies are ample without supplementary purchases. Prices are holding at recent levels, but in the case of ferromanganese, price firmness is due to a strong ore situation rather than the size of the demand or of makers' order books. With any weakening in ore prices ferromanganese might be expected to weaken also. Prices are given on page 1237.

Semi-Finished Steel.—The fact that contract buyers of billets, slabs and sheet bars are not specifying with any considerable freedom and that new demands are extremely light, brings out the suggestion that makers would be willing to take business at less than the quoted prices. But there is no tangible evidence of sales below quotations and it is doubtful whether concessions are being offered, since it is not the price that stands in the way of sales, but the lack of requirements and makers are loath to cut prices to get orders, since in most cases this would mean an automatic reduction in contracts. It is doubted that billets or slabs could be sold at \$35.50, or that \$37 now could be obtained for sheet bars, but there are no sales at less. Forging billets of guaranteed analysis are priced at \$45.50, or \$10 per ton over the rolling billet base and \$5 a ton over forging billets of ordinary carbon content. Wire rods are definitely weaker, with \$48, base, now the top and several makers taking business at \$46, base, Pitts-

burgh or Cleveland. The latter price was the basis of much first quarter business and billets having gone off to the first quarter price, it was natural that rods should recede, especially as makers no longer are crowded with business in finished products. Prices are given on page 1237.

Wire Products.—New business is extremely quiet and while shipments are reasonably good on old orders, mill obligations are melting away with enough rapidity to cause increased concern about mill schedules, which means increased price competition. The regular market prices of makers in this district are \$2.85, base, per keg, Pittsburgh, for nails and \$2.60, base, per 100 lb., Pittsburgh, for plain wire, but the number of mills willing to take business at \$2 a ton less is growing and that cut no longer being a concession for the purpose of getting an order of good size, as has been the case recently, but representing definite quotation, it must be regarded as part of the range. Only a small amount of nail business was done at higher than \$2.75, base, per keg, Pittsburgh, as jobbers filled up heavily at that price and have not reduced their stocks sufficiently to have need of additional supplies. Prices are given on page 1236.

Rails and Track Supplies.—Makers of light rails rolled from billets still have a quotation of 1.80c., base, mill, but claim no sales at that price and admit that they would consider less if there was a worth while inquiry. There is practically no demand and a real selling price waits on the appearance of an inquiry. An order for 3500 tons of tie plates has been placed by the Chesapeake & Ohio Railroad with the Wheeling Steel Corporation. The New York Central Lines, which has an inquiry for 10,000 tons of tie plates, has not yet distributed the order. Prices are given on page 1236.

Tubular Goods.—Demand for pipe is reasonably good in oil country goods, but light in merchant pipe and generally is no tax upon productive capacity. The industry as a whole is probably operating between 75 and 80 per cent, a good average by comparison with some other lines of finishing capacity, but it is based partly on production for stock, the demand not being heavy enough to absorb full present production. It now appears likely that the pipe makers will accept the oil country tubular specifications of the American Petroleum Institute, which, among other things, provide for heavier pipe wall thicknesses and will mean considerable changing of pipe mill equipment. Boiler tubes present only a fair market in point of demand and a poor one so far as profits are concerned, there being too much capacity for the demand. Discounts are given on page 1236.

Sheets.—This market still is generally quiet, with makers more anxious for orders than buyers are to place them and with prices still seeking lower levels. The American Sheet & Tin Plate Co. disclaims having gone below 3.50c. for black, 4.60c. for galvanized and 2.70c. for blue annealed, f.o.b. Pittsburgh mills, and reports larger shipments so far this month than a year ago, a good many rush orders and no suspensions against contracts, although these prices are \$2 to \$4 a ton above those quoted by other makers. Concessions from quotations are obtainable in all finishes, but are really steep in black sheets, which are offered at 3.30c. by two or three makers, while in a general way 3.35c. appears to be the ruling price. This price on black sheets is believed to be well below present producing costs, but apparently makers find losses less from operation than by suspension. The American Sheet & Tin Plate Co. in opening its books for third quarter business in tin andterne plate, did not attempt this formality in sheets, the market for which is regarded as fully open. Mill operations still range between 65 and 70 per cent of capacity. Prices are given on page 1236.

Tin Plate.—In line with expectations the American Sheet & Tin Plate Co. today opened its books for third quarter business in tin andterne (short) plate at unchanged prices, \$5.50 per base box, Pittsburgh, and \$5.60, f.o.b. Gary and Elwood, Ind., for standard cokes. There was some expectation that the company would increase its Western mill differential in view of the fact that its Western mills have been unable to meet

all demands upon them, necessitating shipments from Pittsburgh, with the consequent absorption of freight, but evidently this condition was looked upon as merely temporary. The company already is pretty comfortably filled with third quarter business and other makers should soon be in the same position, now that the price has been announced. The vegetable crops are three to four weeks earlier than a year ago and the indications still are strong of a heavy pack and of a heavy consumption of tin plate.

Cold-Finished Steel Bars and Shafting.—The market is steady both as to demand and prices. There is no long range buying, but a steady flow of orders that provide makers with a fairly high operation, but no strain upon capacity and do not permit the building up of backlogs. Effective April 20, the price of ground shafting has been reduced \$2 per ton to 3.10c., base, for mill carload lots. Prices are given on page 1236.

Steel and Iron Bars.—There is still a quotation of 2.10c., base Pittsburgh, on steel bars, but it does not mean much since most makers now are willing to take even small tonnages as low as 2c., base Pittsburgh. There are no large demands within the Pittsburgh district and going outside local mills find the competition pretty sharp. Makers of iron bars still are holding to 3c., base, for refined iron in carload lots. Prices are given on page 1236.

Structural Material.—Buyers have not responded very well to a price of 2.10c., Pittsburgh, and in the effort to stimulate buying, mills here have cut their prices down generally to 2c., base, and are finding business rather hard to secure even at that price outside the area where they have an advantage on freight. To get into St. Louis in competition with Chicago mills, Pittsburgh district mills would have to make a price of 1.95c. at Pittsburgh, and would have to do the same going to the East. Prices are given on page 1236.

Plates.—The ruling price here is 2c., base Pittsburgh, but no large tonnages are up to test that price, which now refers to single carloads. There is a quotation of 2.10c., but it represents a hope rather than a possibility. Prices are given on page 1236.

Hot-Rolled Flats.—The market is holding very well on hoops and bands and the narrower widths of strips, but on wide strips the buyers still have much to say as to prices, particularly on strips wider than 12 in. The automobile industry is a steady buyer, but is not anticipating its requirements. Prices are given on page 1236.

Cold-Rolled Strips.—One or two producers working on large contracts from the automotive industry are having a good operation, but this condition is the exception rather than the rule, most producers finding it hard to maintain an economical operation. There are occasional deviations, but as a rule 4c., base, Pittsburgh, is a well observed price.

Bolts, Nuts and Rivets.—Buyers of bolts and nuts are still pursuing a hand to mouth policy and makers are dependent upon daily orders for their plant operation. The prices are holding rather well. The rivet market is slow and buyers with attractive inquiries are not finding it hard to secure concessions from quotations. Prices and discounts are given on page 1237.

Coke and Coal.—The coke market still is weak, not that the supply is so heavy, but because the demand is so light. Curtailment of production has not yet closed the gap between supply and demand and prices favor buyers. Spot furnace coke is readily obtainable at \$3 to \$3.10 per net ton at ovens and foundry grade at \$4 to \$4.50. The fact that practically all of the union mines in western Pennsylvania and Ohio will close down shortly rather indicates that the non-union districts can take care of the demand from all sources at present. One large operator of union mines has closed down three operations in the past week and is advising all of the miners individually as to the reasons this was found necessary. Union operators still are hopeful that a conference may be held at which an adjustment of the union agreement may be made that will enable them to operate in competition with non-union mines. Prices are given on page 1237.

Old Material.—There is no activity, but prices are holding rather well, because there is no flood of offerings at these levels. Steel makers willing to take on any tonnage are doing so purely on the basis of reducing the price averages of their supplies and will not pay much. Prices are regarded as too high for yard purchases by dealers. But, on the other hand, the railroads and other producers of good scrap have definite ideas of its value and they are well above today's market prices. There is no occasion to change prices materially from those of a week ago. The Baltimore & Ohio list for April, bids against which close at noon April 27, offers 18,880 gross tons, of which 7100 tons are miscellaneous rails.

We quote for delivery to consumers' mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton	
Heavy melting steel	\$17.00 to \$17.50
No. 1 cast, cupola size	17.50 to 18.00
Rail for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	18.50 to 19.00
Compressed sheet steel	15.50 to 16.00
Huddled sheets, sides and ends	14.50 to 15.00
Railroad knuckles and couplers	19.50 to 20.00
Railroad coil and leaf springs	19.50 to 20.00
Low phosphorus blooms and billet ends	22.00 to 22.50
Low phosphorus plate and other material	20.50 to 21.00
Railroad malleable	17.50 to 18.00
Steel car axles	20.50 to 21.00
Cast iron wheels	18.00 to 18.50
Rolled steel wheels	19.50 to 20.00
Machine shop turnings	13.50 to 14.00
Short shoveling turnings	13.50 to 14.00
Sheet bar crops	20.00 to 20.50
Heavy steel axle turnings	17.50 to 18.00
Short mixed borings and turnings	13.50 to 14.00
Heavy breakable cast	15.00 to 15.50
Stove plate	14.50 to 15.00
Cast iron borings	13.50 to 14.00
No. 1 railroad wrought	13.50 to 14.00
No. 2 railroad wrought	17.00 to 17.50

Ingot Production Declines to 75 Per Cent in the Valleys

YOUNGSTOWN, April 21.—Operations this week of Valley iron and steel properties show comparatively little deviation from the preceding week. Steel ingot production has declined the past few weeks to a 75 per cent rate, due to curtailments in steel-making by the Carnegie Steel Co., principally at its Farrell, Pa., works. The independents are maintaining a relatively lower rate of ingot output.

Of 52 independent open-hearth furnaces in the district, 33 are melting this week, with independent Bessemer department operations curtailed to 60 per cent. The Carnegie company is operating 22 of 30 open-hearth furnaces in the district and its Bessemer plants at 80 per cent.

The Youngstown Sheet & Tube Co. has 11 of 24 open hearths in this district in action.

Non-integrated sheet rollers are operating their plants on a proportionately larger scale than the major producers. Of the 127 sheet and jobbing mills in the Mahoning Valley, 86 were scheduled this week, including 43 units operated by the smaller makers buying sheet bars on the market.

The Waddell Steel Co. at Niles has added one more hot mill, operating five instead of four as heretofore.

Earnings of Republic Iron & Steel Co. Show Decline

The Republic Iron & Steel Co., the first of the larger independent steel companies to publish its earnings for the first quarter, has reported net profits of \$812,560 after taxes and charges. In the first quarter of 1924, net profits were \$1,356,158.

After allowing dividends, there remained surplus of \$375,060 against \$668,658 in 1924. During the first three months of 1924, however, the company paid on preferred stock 1 per cent on account of accumulated dividends. Unfilled orders reported on hand March 31, of finished and semi-finished products were 140,055 tons, compared with 116,759 tons a year ago.

Chicago

Reduction of Price of Pig Followed by Increased Buying—Finished Materials Decline

CHICAGO, April 21.—A further recession in buying of steel products marks a situation in which price adjustment has become more general in scope. Under pressure of competition from the East, local quotations on plates, shapes and bars have given ground and ruling prices now range from 2.20c. to 2.30c. on plates and shapes and from 2.10c. to 2.20c. on bars. Wire and nails have not yet found stability and are now closer to \$4 than \$2 below the prices announced early in February. Sheets are not yet on a firm footing and cold-rolled strip is decidedly unsteady, as low as 4c., Chicago, having been reported on that commodity. In a word, the market is now passing through a phase which will inevitably lead to the point where sellers will say no rather than grant further concessions. The resistance to pressure for concessions has been greater on the part of mills rolling the heavier products, such as plates, shapes and bars than on the part of other producers, but this is not surprising in view of the better backlogs of the former.

The two leading producers of heavier rolled commodities are still running at 90 to 95 per cent of capacity. The blowing out of a blast furnace at South Chicago has further reduced the number of active steel works stacks in this district to 29 out of a total of 35. Thus far five furnaces have gone out since peak operations were reached in the first quarter.

The market is not devoid of inquiries, but in most cases buyers close for only a small percentage of what they inquire for, indicating their unwillingness to contract ahead until they are convinced that prices have been stabilized. Actual consumption of steel shows little change, lending support to the view of the mills that wants are commencing to accumulate which will usher in another buying movement. In the railroad equipment field, the St. Paul inquiry for 5500 cars has been followed by reports that two other Western lines will enter the market for 8000 cars each.

Pig Iron.—Local iron has declined another dollar a ton to \$22, base furnace. Prices are now \$2 below the peak and that the reduction has stirred up interest on the part of buyers is indicated by heavier sales and inquiries. A local melter has closed for 1200 tons of foundry and a Michigan user placed 1800 tons of malleable, partly with Chicago and partly with Detroit. Three current inquiries call for 2000 tons or more each. It would appear that a considerable number of melters still have part of their second quarter requirements to buy. While operations among foundries in this territory are spotty, the total melt seems to be holding its own. A local buyer has closed for 300 tons of charcoal and a Michigan automobile builder has ordered 200 tons. Southern foundry ranges from \$18.50, base Birmingham, to \$19. We note sales of 300 tons and 200 tons of Southern in this territory. An inquiry for 200 tons of low phosphorus is before the trade. Silvery has declined \$3 a ton. See page 1237 for prices.

Quotations on Northern foundry, high phosphorus, malleable and basic irons are f.o.b. local furnaces and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards:

Northern No. 2 foundry, sil. 1.75 to 2.25	\$22.00
Northern No. 1 foundry, sil. 2.25 to 2.75	23.00
Malleable, not over 2.25 sil.	22.00
Basic	22.00
High phosphorus	22.00
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (barge and rail)	25.68
Southern No. 2, sil. 1.75 to 2.25	\$24.51 to 25.01
Low phos., sil. 1 to 2 per cent, copper free	32.65
Silvery, sil. 8 per cent.	31.29
Electric ferrosilicon, 14 to 16 per cent	44.00 to 45.00

Bolts and Nuts.—Demand has shown no marked change and price concessions are still exceptional.

Jobbers quote structural rivets, 3.50c.; boiler rivets, 3.70c.; machine bolts up to $\frac{3}{4}$ x 4 in., 55 per cent off; larger sizes, 55 off; carriage bolts up to $\frac{3}{4}$ x 4 in., 50 off; larger sizes, 50 off; hot pressed nuts, squares, tapped or blank, \$3.50 off; hot pressed nuts, hexagons, tapped or blank, \$4 off; coach or lag screws, 60 per cent off.

Ferroalloys.—The market is without feature.

We quote 80 per cent ferromanganese, \$122.56, delivered; 50 per cent ferrosilicon for 1925 delivery, \$85, delivered; spiegeleisen, 18 to 22 per cent, \$40.04 to \$40.58, delivered.

Plates.—New business is light and plates are now rather generally available at 2.20c., Chicago, the former quotation of 2.30c. having practically disappeared except on small tonnages. There are again signs of a revival in railroad equipment buying. The Chicago, Milwaukee & St. Paul, which entered the market for 5500 cars last week, contemplates issuing inquiries for 2000 more. Two other Western lines are considering the purchase of 8000 cars each. Greater interest is also manifested in oil storage tanks, the Humble Oil Co. being in the market for 1000 tons and Texas Oil & Land Co. for 700 tons of tank work. Award has been made of 1400 tons for tanks and pipe lines at Whellon, Utah.

The mill quotation is 2.20c. to 2.30c., Chicago. Jobbers quote 3.10c. for plates out of stock.

Structural Material.—Plain material prices now range from 2.20c. to 2.30c., Chicago, with 2.20c. the ruling quotation except on small lots. Local mills are booking little new business, but are still receiving specifications in good volume. Fabricating awards for the week were light, but the amount of work in prospect is large. Bids will be taken next Monday on an auditorium and orchestra hall, Minneapolis, requiring 5800 tons. Early action is also expected on the Ambassador Theater, St. Louis, 5000 tons. The American Bridge Co. has booked an aggregate of 1350 tons for bridges and viaducts on various Western railroads.

The mill quotation on plain material is 2.20c. to 2.30c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Bars.—Soft steel bars are now quoted at 2.10c. to 2.20c., Chicago. One important interest is still holding to the higher quotation, but other mills are taking business at 2.10c.; in fact, competition from outside producing centers has been unusually severe, as low as 1.75c., Pittsburgh, or 2.09c., delivered Chicago, having been done by an Eastern mill. New commitments in bars are restricted, although specifications are still liberal. Bar iron is quiet with demand perhaps a little better than a week ago. The ruling market quotation remains weak at 2.10c., Chicago.

Mill prices are: Mild steel bars, 2.10c. to 2.20c.; common bar iron, 2.10c., Chicago; rail steel, 2.10c., Chicago mill.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.80c. for rounds and hexagons and 4.30c. for flats and squares; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.60c.

Sheets.—Specifications are irregular and demand is spotty. Current orders are frequently for small lots for quick delivery, indicating that consumers are operating close to their stocks. Prices are soft and, if anything, are weaker than heretofore. On blue annealed 2.70c., Chicago district mill, now represents the top of the market. Prices have suffered the most in neutral territories, especially in the Southwest, where exceedingly sharp competition from other producing centers has been encountered. Western mill operations are irregular.

Chicago delivered prices from mill are 3.65c. for No. 28 black, 2.75c. for No. 10 blue annealed and 4.75c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Jobbers quote f.o.b. Chicago: 3.80c. base for blue annealed, 4.50c. base for black, and 5.50c. base for galvanized.

Warehouse Prices.—Under a readjustment of prices on cold-rolled steel bars and shafting, hexagons have been reduced from 4.30c. per lb. to 3.80c., being brought to a parity with rounds. Flats and squares remain

unchanged at 4.30c. Quantity extras on cold-rolled have been eliminated. Formerly an extra of 15c. per 100 lb. was charged for orders of one size, under 2000 lb. and over 1000 lb., while orders for less than 1000 lb. carried an extra of 35c. Generally speaking, warehouse business is holding up to the average for the first quarter, although it is not so large as was expected when present stocks were contracted for.

Wire Products.—Prices remain weak with \$2.85 base per keg on nails and \$2.60 base on bright plain wire more commonly quoted at Chicago district mills. These quotations are \$4 a ton below those announced early in February. Here and there specifications are slightly better, indicating that jobbers are reducing their stocks. In the agricultural States, however, the outstanding factor which is retarding business is the fact that the farmers are now in the fields. It is hoped that they will find time to do some repair work between plowing and planting. In some instances certain mills have attempted to stimulate business by shipping pool cars to consuming centers for direct delivery to retailers and small distributors. The joint consignees get the benefit of the lower carload freight rate and also, it is said, are quoted lower prices than they would have to pay to jobbers. Mill operations range from 60 to 65 per cent.

We quote warehouse prices f.o.b. Chicago: No. 8 black annealed wire, \$3.15 for 100 lb.; common wire nails, \$3.25 per keg; cement coated nails, \$2.55.

Rails and Track Supplies.—The New York Central took bids last week on 10,000 tons of tie plates and lowest price quoted was \$47 f.o.b. mill. It is assumed that about 40 per cent of the order will go to local mills and the remainder to Eastern producers. The Chesapeake & Ohio inquiry for 3500 tons of tie plates is still pending. A Chicago mill has booked a total of 1200 tons of tie plates and 4500 kegs of spikes and bolts during the week. The Litchfield & Madison Railway has ordered 2000 tons of rails and 500 tons of angle bars, bolts and spikes from the Inland Steel Co. Light rails, which are inactive, are quoted at 1.80c. to 1.90c. f.o.b. mill.

Standard Bessemer and Open-hearth rails, \$43; light rails, rolled from billets, 1.90c. to 1.90c., f.o.b. makers' mill.

Standard railroad spikes, 3c. mill; track bolts with square nuts, 4c. mill; steel tie plates, 2.35c., f.o.b. mill; angle bars, 2.75c. f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.55c. base, and track bolts, 4.55c. base.

Cast Iron Pipe.—The Lynchburg Foundry Co. is low bidder on 2500 tons for Milwaukee with a figure of \$45.90, delivered, or \$37.40, base Birmingham. The next lowest bid figured back to \$38, base Birmingham. James B. Clow & Sons will furnish 425 tons for Spring Wells, Mich., and are low bidders on 700 tons for Akron, Ohio. The United States Cast Iron Pipe & Foundry Co. will supply 1000 tons for Riverside, Ill. Detroit will take bids for a third time on 12,865 tons April 23. Chicago will receive tenders April 28 on 1263 tons of 6-, 8- and 12-in. Gross Point, Mich., has taken figures on 100 tons, and Carbondale, Ill., took bids last night on 420 tons of 16-in. Manitowoc, Wis., closes April 30 on 200 tons of 4-, 6-, 8- and 10-in.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., \$50.70 to \$52.26; 6-in. and over, \$46.70 to \$48.20; Class A and gas pipe, \$4 extra.

Reinforcing Bars.—Another section of the South Water Street double decking work, Chicago, has come up for bids, and will require 700 tons of reinforcing. Early action is expected on the 1600 tons required for the Stevens Hotel, Chicago, the general contract for which was finally awarded to the George A. Fuller Co. Lettings for the week were few. The ruling price on billet reinforcing bars has declined \$2 a ton to 2.60c., Chicago warehouse, acting in sympathy with mill prices.

Lettings include:

Apartment building, Thirty-first Street and Grand Avenue, Milwaukee, Wis., 175 tons to American System of Reinforcing.

Park Shore apartment hotel, Chicago, 160 tons of rail steel to the Calumet Steel Co.

High school, Freeport, Ill., 160 tons to Olney J. Dean & Co.

Crowley-Milner department store, Detroit, 125 tons to Bourne-Fuller Co.

Medinah Country Club, Medinah, Ill., 100 tons to American System of Reinforcing.

American National Bank, Wausau, Wis., 215 tons to American System of Reinforcing.

Pending work includes:

New section of South Water Street double decking, Chicago, 700 tons.

Theater for Lubliner & Trinz, Milwaukee and Lawrence Avenues, Chicago, 140 tons.

Y. M. C. A. College, Sixty-seventh Street and Drexel Boulevard, Chicago, revised general contract figures to be taken.

Ward memorial, Northwestern University, Chicago, 265 tons.

Auditorium and orchestra hall, Minneapolis, 300 tons.

Old Material.—The market is marking time, showing little activity on the part of either brokers or consumers. Dealers are inclined to play close to sales, as they do not regard it a good time to sell short. Such business as is moving indicates further weakness in prices, but changes in the appended list are few. During the past week, small tonnages of heavy melting have been sold at both \$15.25 and \$15, delivered. Railroad lists are still commanding higher prices on purchases to fill expiring orders. Fresh railroad offerings include the Baltimore & Ohio, 19,000 tons; the Grand Trunk, 2600 tons, and the Monon, 600 tons.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	\$17.00 to \$17.50
Cast iron car wheels	16.00 to 16.50
Relaying rails, 56 and 60 lb.	25.00 to 26.00
Relaying rails, 65 lb. and heavier	26.00 to 31.00
Forged steel car wheels	18.00 to 18.50
Railroad tires, charging box size	18.00 to 18.50
Railroad leaf springs, cut apart	18.00 to 18.50
Rails for rolling	16.00 to 16.50
Steel rails, less than 3 ft.	17.50 to 18.00
Heavy melting steel	14.75 to 15.25
Frogs, switches and guards cut apart	15.25 to 15.75
Shoveling steel	14.50 to 15.00
Drop forge flashings	11.00 to 11.50
Hydraulic compressed sheets	12.50 to 13.00
Axle turnings	13.00 to 13.50
Steel angle bars	16.50 to 17.00
Steel knuckles and couplers	17.50 to 18.00
Coil springs	19.00 to 19.50
Low phos. punchings	17.00 to 17.50
Machine shop turnings	9.50 to 10.00
Cast borings	10.75 to 11.25
Short shoveling turnings	10.75 to 11.25
Railroad malleable	17.50 to 18.00
Agricultural malleable	16.50 to 17.00

Per Net Ton	
Iron angle and splice bars	17.00 to 17.50
Iron arch bars and transoms	19.00 to 19.50
Iron car axles	25.50 to 26.00
Steel car axles	16.00 to 16.50
No. 1 busheling	11.50 to 12.00
No. 2 busheling	9.50 to 9.00
Pipes and flues	9.50 to 10.00
No. 1 railroad wrought	12.00 to 12.50
No. 2 railroad wrought	12.25 to 12.75
No. 1 machinery cast	17.50 to 18.00
No. 1 railroad cast	15.50 to 16.00
No. 1 agricultural cast	15.00 to 15.50
Locomotive tires, smooth	16.00 to 16.50
Stove plate	12.25 to 12.75
Grate bars	13.00 to 13.50
Brake shoes	12.00 to 12.50

Eaton, Rhodes & Co., Cincinnati, have announced that they are ready to offer to the trade Portsmouth Better by-product foundry coke, produced by the Portsmouth By-Product Coke Co., Portsmouth, Ohio, which has set aside a fixed portion of its productive capacity to be devoted exclusively to the manufacture of foundry coke. During the past year, a modern coke handling plant has been installed, designed primarily to eliminate breakage. The special foundry coke, screening and loading plant is nearing completion. Eaton, Rhodes & Co. have been the sales agents for the Portsmouth By-Product Coke Co. for many years.

In a decision announced April 20 at Washington the Interstate Commerce Commission found not justified a proposal of the Missouri Pacific Railroad to exempt coke ovens of the Laclede Gas Light Co., at St. Louis, the only coke ovens on its line, from the operation of demurrage rules. The schedules, which had been suspended, were ordered canceled.

New York

Steel Buying Improves, But at Expense of Prices—Pig Iron Dull

NEW YORK, April 21.—Dullness continues in the pig iron market, and although sales for the past week amounted to about 8000 tons, the opinion of experienced observers is that lower levels will be reached before a genuine buying movement for the third quarter is inaugurated. Present buying is mostly for early needs, indicating that stocks of some melters are low. Prices show a sagging tendency. In eastern Pennsylvania \$21.50 has been done and it is probable that some furnaces would consider an offer at \$20 for No. 2 plain. In the Buffalo district \$20 can easily be done on No. 2 plain and the price for No. 2X is little, if any, higher. Competition of foreign iron is less pronounced.

We quote delivered in the New York district as follows, having added to furnace prices \$2.52 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.44 from Virginia:

East. Pa. No. 2, sil. 1.75 to 2.25..	\$24.02 to \$24.52
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	24.52 to 25.02
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	24.02 to 24.52
Buffalo, sil. 1.75 to 2.25.....	24.91 to 25.41
No. 2 Virginia, sil. 1.75 to 2.25..	29.44

Ferroalloys.—Business in ferromanganese and spiegelisen is still of a hand-to-mouth character and confined to purchases of carload and small lots by consumers who are in need of the alloy. Prices are firm and specifications on contract are still good. As most of the contracting was for the first half this year, it is expected that a more active market will develop within a few weeks.

Cast Iron Pipe.—Prices continue unsteady on bell and spigot pipe, wherever competition of the Pont-a-Mousson works, the French maker, appears. While the quotations on the large municipal purchases of pipe are often several dollars a ton lower, the current market price is still from \$52.60 to \$53.60 per ton, New York. An inquiry by Hartford, Conn., for 500 tons of 6-in. to 20-in. pipe resulted in award of the business to the Warren Foundry & Pipe Co. It is reported that about 8000 tons of pipe asked for by Spartanburg, S. C., was placed with an American maker at about \$41 per ton, delivered, compared with a bid by the foreign producer of \$47 per ton, delivered. The market on soil pipe continues quiet, with the higher discounts now being quoted bringing out but little increase in business. Jobbers are figuring on some fair tonnages for various building projects, but quotations apparently seldom develop into business. Makers are working on bookings of about two to three weeks' business and eagerly seeking more tonnage.

We quote pressure pipe per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, \$52.60 to \$53.60; 4-in. and 5-in., \$57.60 to \$58.60; 3-in., \$67.60 to \$68.60, with \$5 additional for Class A and gas pipe. Discounts on both Northern and Southern makers of soil pipe, f.o.b. New York, are as follows: 6-in., 42½ to 43¼ per cent off list; heavy, 52½ to 53½ per cent off list.

Warehouse Business.—Several jobbers issued notices last week that extras for quantity on cold-finished steel would be eliminated, the 50c. differential between hexagons and rounds being erased. The leading independent made this effective April 20. Some houses, however, revoked the decision and are awaiting developments. Business was in fair volume, structural steel and bars being the most active. In some lines prices are soft and price cutting common. Some mills are in a position to take small rollings of sheets in competition with warehouses. We quote boiler tubes per 100 ft. as follows:

Lapwelded steel tubes, 2-in., \$17.33; seamless steel, 2-in., \$20.24; charcoal iron, 2-in., \$25; 4-in., \$67.

Finished Iron and Steel.—In a market lacking in development the chief item of interest this week is the definite settling of the steel bar price to the basis of 2c., Pittsburgh mill. The change from 2.10c. is not complete as there is still business being done at the latter figure, but the weakening of the market began

with the extending of first quarter contracts by some of the mills. Most of these contracts were at the 2c. price. Even after this change was made, however, mills continued to quote 2.10c. on current inquiries and have been getting it and still are getting it on the smaller orders. A few second quarter contracts which were entered at 2.10c. have been altered to the 2c. level. Some of the concrete bar companies, which were quoting 2.20c., are now quoting 2.10c. Prices on plates and shapes are unchanged, being weak at 2c., Pittsburgh, some of the Eastern mills making concessions on the more desirable business. Sheet prices are irregular and weak and current orders are so small as to furnish no real test but 2.40c. for blue annealed and 3.30c. for black seem likely on an attractive order. Wire can now be obtained for 2.50c. and nails for 2.75c. There has been a drop in the volume of structural work locally during the past week, but a good deal of work is being figured and the fact that one week's figures are below the average is not necessarily significant. The largest award is 4600 tons for New York subway work, this to be fabricated by the American Bridge Co. A Fifth Avenue office building, on which bids are being taken, will require 2000 tons of shapes. The market is not distinguished by many large orders, hence the placing of 150,000 boxes of tin plate by the Standard Oil Co. of New Jersey, expected to be a fact as this issue goes to press, is of more than ordinary importance. The New York Central is also closing on some 3000 tons of tie plates.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. to 2.44c.; plates, 2.34c.; structural shapes, 2.34c.

Old Material.—The market on all grades is practically stationary, with brokers offering minimum prices, as a rule, to fulfill contracts and encountering but little difficulty in securing tonnage, although stocks in the hands of dealers are evidently not large. The usual offering price today on heavy melting steel is \$14.50 per ton, delivered eastern Pennsylvania consumers, either on a low or high freight rate. The low rate of operation of many consumers still restricts buying, mills being inclined to satisfy current needs locally by purchase of small lots, as in the case of a Harrisburg consumer which recently closed on about 500 tons of material with local dealers. Borings and turnings and heavy melting steel are still going forward to Bethlehem, Pa., at \$14.50 per ton, delivered, for the steel and \$11.50 per ton for the borings and turnings. A Phoenixville consumer is accepting machine shop turnings, stove plate and bundled sheets. In most cases brokers are offering only \$14.50 per ton, delivered, on heavy melting steel for the Alan Wood Iron & Steel Co.

Buying prices per gross ton New York follow:

Heavy melting steel, yard.....	\$10.00 to \$10.50
Heavy melting steel, railroad or equivalent	11.50 to 12.00
Rails for rolling	12.75 to 13.25
Relaying rails, nominal	24.00 to 25.00
Steel car axles	18.00 to 18.50
Iron car axles	23.00 to 23.50
No. 1 railroad wrought	13.75 to 14.25
Forge fire	10.00
No. 1 yard wrought, long	13.00 to 13.50
Cast borings (steel mill)	8.50 to 9.00
Cast borings (chemical)	14.00 to 14.50
Machine shop turnings	8.50 to 9.00
Mixed borings and turnings	8.00 to 9.00
Iron and steel pipe (1 in. diam., not under 2 ft. long)	10.25 to 10.75
Stove plate	9.00 to 10.50
Locomotive grate bars	11.50 to 12.00
Malleable cast (railroad).....	13.00 to 13.50
Cast iron car wheels	13.00 to 13.50
No. 1 heavy breakable cast	11.50 to 12.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	15.00 to \$15.50
No. 1 heavy cast (columns, building material, etc.), cupola size	13.00 to 13.50
No. 2 cast (radiators, cast boilers, etc.)	12.00 to 12.50

Sales of plumbing supplies by jobbers at Chicago, are approximately 15 per cent below what they were at this time a year ago. The recession is due more largely to a current tendency to hold back the placing of orders than to any appreciable decline in building operations.

Cincinnati

Inquiries for Pig Iron More Numerous— Silvery Prices Reduced

CINCINNATI, April 21.—Sales of pig iron show a decrease in the local market, but inquiries are more numerous and dealers feel that the volume of purchases will take a slight upward turn in the next ten days. However, prices are still declining and the past week was marked by a decline of \$3 a ton in the schedule of Jackson County silvery prices. Sales of silvery iron have been made for several weeks at prices below the schedule, but announcement has now been made of the decreased rates. Dealers report that consumers are taking pig iron shipments at a satisfactory rate and there have been only a few instances of deliveries being held up. Most of the buying at present is for second quarter shipment, although several orders have been booked for the third quarter. The largest sale reported was that of 350 tons of 7 to 8 per cent silvery to a Michigan consumer. A Dayton, Ohio, foundry bought 200 tons of Northern foundry for second quarter delivery. An order for 100 tons of Northern iron for prompt shipment to a southern Indiana consumer was placed locally. The Hart Mfg. Co., Louisville, Ky., purchased 200 tons of pig iron, but the company has not yet decided whether to take Northern or Southern iron. Other sales of Northern have been limited to carloads or less. Inquiries for Northern iron are better than they were a week ago. An Indianapolis melter is in the market for 200 tons of Northern foundry for second quarter delivery. The Muncie Foundry & Machine Co., Muncie, Ind., is inquiring for the same amount of Northern foundry. The New Idea Spreader Co., Cold Water, Ohio, has an inquiry out for 100 to 150 tons of Northern iron for prompt shipment. A Piqua, Ohio, consumer is asking for quotations on 200 tons of Northern iron for shipment during the second and third quarters. A Greenville, Ohio, foundry wants from 100 to 300 tons of No. 2 Northern iron for second quarter delivery. No sales of importance have been reported in the Southern pig iron market, which is quiet. Inquiries also are scarce. The Norfolk & Western Railroad, Roanoke, Va., is inquiring for 200 tons of Southern iron, but it is reported that the company may purchase Northern iron instead of Southern. A Nashville, Tenn., consumer is asking for 100 tons of Southern iron. Prices of Northern iron show further weakness, the market ranging from \$21 to \$21.75, furnace, in the Iron-ton district. Tennessee furnaces are asking \$18.50, Birmingham, while Alabama furnaces are quoting \$20 to \$22, Birmingham, although they are doing no business at these prices in this territory.

Based on freight rates of \$4.05 from Birmingham and \$2.27 from Iron-ton we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25	
(base)	\$24.05 to \$25.05
Alabama fdy., sil. 2.25 to 2.75 ..	24.55 to 25.55
Tennessee fdy., sil. 1.75 to 2.25 ..	22.55
Southern Ohio silvery, 8 per cent	29.77
Southern Ohio fdy., sil. 1.75 to 2.25 ..	23.27 to 24.02
Southern Ohio, basic (nominal) ..	24.27
Southern Ohio malleable	24.27 to 25.27

Sheets.—A spotty condition prevails in the local sheet market. Several companies report that they have had a small increase in sales the past week. Most of the business coming in at present consists of small orders, but these bookings total a fairly good tonnage. Specifications against contracts are holding up well. Shipments from mills in this district have been heavy, but it is uncertain how long full-time operation by mills will be maintained unless increased orders are placed by consumers. Several large sellers state that the volume of sales has fallen off considerably as compared with March. Prices continue to be soft. Black sheets are being maintained at 3.50c., Pittsburgh, by some companies. However, these concerns are losing business to competitors who are booking orders at 3.40c. The quotation of 3.30c. has been reported, but this does not represent the market. Galvanized sheets are selling at the same figures as last week, 4.40c.,

Pittsburgh, to 4.60c. Little is being sold at the latter price. Quotations on blue annealed sheets are fairly firm at 2.60c., Pittsburgh, and all companies apparently are maintaining this level. However, the price of 2.70c. has disappeared. Automobile sheets are not moving well in this territory, although mills report that automobile manufacturers at Detroit have been booking good orders. Prices range from 4.40c., Pittsburgh, to 4.50c., but sizable tonnages can be purchased at the former quotation.

Tin Plate.—Specifications filed by can manufacturers have reached a gratifying volume and mills are running at capacity to supply the demand. Cannery are predicting a record-breaking season. Prices are firm at \$5.50 per base box, Pittsburgh.

Reinforcing Bars.—The past week has been marked by lessened activity. No major awards have been made and pending projects are not so numerous as they were a short time ago. The contract for the warehouse of the Kroger Grocery & Baking Co., Cincinnati, about 385 tons, has not yet been awarded, although a decision is expected within the next few days. Bids closed on April 17 for the Booth Memorial Hospital, Covington, Ky., for which Samuel Hannaford & Sons, Cincinnati, are the architects. This calls for about 200 tons. The usual quotation on new billet bars is 2.10c., mill. The price of rail steel varies from 1.95c., mill to 2c., although 1.95c. is made on attractive tonnages.

Wire Goods.—Little demand is being evidenced by consumers. Nails are moving at present only in small quantities and there is little indication that there will be a change in the immediate future. Buyers are careful to purchase only enough stock to fill present needs and are not inclined to anticipate requirements. Nail prices have been firmly established at 2.75c., Pittsburgh. Both Eastern mills and mills in Iron-ton territory are selling at this quotation. The market, however, even at this level, is weak as far as sales are concerned. Plain wire is also but little in demand. Quotations of 2.60c., Pittsburgh, are being made by several large companies, but they are losing some business to mills that are booking orders at a lower figure.

Plates, Shapes and Bars.—There have been restricted sales of bars in the past week. Orders have been small and the tonnage is light. The prevailing prices range from 2c. to 2.10c., Pittsburgh. Movement of plates and shapes is about the same as a week ago.

Structural Steel.—An increase in activities has taken place in the past week. The contract for the College Hill School, Cincinnati, about 200 tons, was awarded to the Schreiber & Sons Co. The number of small jobs being placed with local fabricators is encouraging. Inquiries are more numerous than they have been for a considerable time. The Federal Land Bank, Louisville, Ky., is to construct a building that will take about 200 tons. Bids are being submitted to D. X. Murphy & Brother, Louisville architects. The Louisville & Nashville Railroad Co. is to erect a bridge at Knoxville, Tenn., which will require between 300 and 400 tons. The Indiana State Highway Commission is to make an award on April 24 of the contract for a highway bridge at Rogers, Ind., 500 tons. The Kentucky State Highway Commission is taking bids at present on several highway bridges that total about 400 tons. It is anticipated that there will be an award within the next sixty days for the new Masonic Temple, Cincinnati. Prices are 2c. to 2.10c. Pittsburgh.

Warehouse Business.—Jobbers state that a gradual improvement has been noticeable in the past ten days. Consumers continue to pursue a cautious buying policy and are purchasing only enough material to fill immediate needs. They are relying upon the jobbers for quick delivery in many instances. The volume of orders being received in Cincinnati is fairly good and the tonnage is better than it has been for a number of weeks. April undoubtedly will show an improvement over March, but the increase will not be as large as jobbers had expected. Structural steel and plates are moving well at present. Several concerns report that

blue annealed sheets are displaying weakness. The cooperage trade is rather quiet at present and the demand for hoops and bands has thus been cut down. Prices are steady with no indication of any changes in the immediate future.

Cincinnati jobbers quote: Iron and steel bars, 3.30c.; reinforcing bars, 3.30c.; hoops, 4.35c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; cold-rolled rounds, 4.05c.; cold-rolled flats, squares and hexagons, 4.55c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, 4.60c.; No. 28 galvanized sheets, 5.75c.; No. 9 annealed wire, \$3.25 per 100 lb.; common wire nails, \$3.25 per keg base; cement coated nails, \$2.65 per keg; chain, \$7.55 per 100 lb. base; large round head rivets, \$3.75 base; small rivets, 65 per cent off list. Boiler tubes, prices net per 100 ft., lap welded steel tubes, 2-in., \$18; 4-in., \$38; seamless, 2-in., \$19; 4-in., \$39.

Coke.—The coke market shows limited activity. Specifications for domestic business have been poor, but while shipments of foundry coke are fair, restricted sales are reported on New River foundry. The same is true of Wise County coke. Prices are weak.

Connellsville furnace, \$3 to 3.50; foundry, \$4.50 to \$5.50; New River foundry, \$8.00 to \$8.50; Wise County furnace, \$3.75 to \$4.50; foundry, \$4.50 to \$6.00; by-product foundry, \$6.50 Connellsville basis.

Old Material.—There has been no change in the scrap market. Mills are not buying at present and the few sales that dealers are making are forced. Inquiries are poor. The Louisville & Nashville and the Cincinnati Southern disposed of considerable tonnage of scrap the past week, part of which was purchased locally. The Chesapeake & Ohio has held off closing its list until this week. Prices remain unchanged and are weak.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel	\$13.50 to \$14.00
Scrap rails for melting	13.50 to 14.00
Short rails	17.50 to 18.00
Relaying rails	28.00 to 28.50
Rails for rolling	15.00 to 15.50
Old car wheels	12.50 to 14.00
No. 1 locomotive tires	16.50 to 17.00
Railroad malleable	16.00 to 16.50
Agricultural malleable	14.50 to 15.00
Loose sheet clippings	9.50 to 10.00
Champion bundled sheets	12.00 to 12.50

Per Net Ton	
Cast iron borings	8.50 to 9.00
Machine shop turnings	7.50 to 8.00
No. 1 machinery cast	17.50 to 18.00
No. 1 railroad cast	15.00 to 15.50
Iron axles	22.00 to 22.50
No. 1 railroad wrought	11.00 to 11.50
Pipes and flues	7.50 to 8.50
No. 1 busheling	9.50 to 10.00
Mixed busheling	8.50 to 9.00
Burnt cast	9.50 to 10.00
Stove plate	10.00 to 10.50
Brake shoes	11.00 to 11.50

Buffalo

One Lot of 4000 Tons of Pig Iron Only Important Transaction of the Week

BUFFALO, April 21.—Inquiry for the past week was lighter than usual, the aggregate being between 4000 and 5000 tons. About a dozen inquiries are included in this total. An Eastern melter sought 1000 tons of foundry and this was the best offering. Business placed was light. One maker took about 4000 tons of the business offered during the week and the week before, including one order of 1000 tons of foundry. While rumors come in of some Buffalo makers having made a lower price than \$20 on New England business, this report is not well substantiated, and so far as can be learned here, \$20 is the lowest price being made, though it is possible that this figure could be stretched to include 2.25 to 2.75 silicon iron. Operations are slightly less, the Hanna Furnace Co. having blown out one of its three active stacks.

We quote prices f.o.b. gross ton, Buffalo, as follows:

No. 2 plain, sil. 1.75 to 2.25	\$20.00 to \$21.00
No. 2X foundry, sil. 2.25 to 2.75	20.25 to 21.00
No. 1 foundry, sil. 2.75 to 3.25	21.00 to 22.00
Malleable, sil. up to 2.25	20.00 to 21.00
Basic	21.00
Lake Superior charcoal	29.28

Finished Iron and Steel.—Specifications the last few days have been better in bars and shapes, and particularly better in tin plate, where some users have been calling for advance deliveries. Bars are being quoted at 2.265c. and 2.365c., delivered Buffalo, but shapes, so far as is known, have not fallen under 2.365c., delivered Buffalo. Fabricating business is not heavy; the Elks Club of 800 tons to a Buffalo fabricator being the only sizable letting. Two schools, involving a couple of hundred tons, are up for bidding. Wire business is fair and reinforcing bar business is the same. Nails are softer. A new third quarter price on tin plate is expected this week.

Warehouse prices are being quoted as follows: Steel bars, 3.25c.; steel shapes, 3.35c.; steel plates, 3.35c.; No. 10 blue annealed sheets, 4.05c.; No. 28 black sheets, 4.75c.; No. 28 galvanized, 5.80c.; cold rolled shapes, 4.65c.; cold rolled rounds, 4.20c.; wire nails, 4.00c.; black wire, 4.05c.

Old Material.—Very little business is offering and though mills are in the market for small tonnages, the low prices are not bringing out anything exceptional. One mill is offering \$15 per gross ton for heavy melting steel and another offers \$16. Some clean cast borings and short turnings have been sold at \$12, but one mill here which offers \$11.60 is getting all it wants. Machine shop turnings are lower, as are shoveling turnings. One mill is stated to have bought a little heavy melting steel, distress tonnage, at as low as \$14.50. Cast is weak at \$16 to \$17.

We quote prices f.o.b. gross ton, Buffalo, as follows:

Heavy melting steel	\$15.00 to \$16.00
Low phosphorus	18.50 to 19.50
No. 1 railroad wrought	14.00 to 14.50
Car wheels	17.50 to 18.00
Machine shop turnings	10.50 to 11.00
Cast iron borings	10.50 to 11.00
No. 1 busheling	14.50 to 15.00
Stove plate	14.50 to 15.00
Grate bars	12.50 to 13.00
Bundled sheets	11.50 to 12.00
Hydraulic compressed	15.25 to 15.75
Railroad malleable	17.00 to 17.50
No. 1 cast scrap	16.50 to 17.00
Iron axles	26.00 to 27.00
Steel axles	17.00 to 17.50

Boston

Pig Iron Market Remains Quiet with Only One Large Inquiry Out

BOSTON, April 21.—A sale of 600 tons of No. 2X, second quarter delivery iron to a Massachusetts machinery maker, and another of 400 tons No. 2X to a Providence, R. I., melter constitute the largest pig iron sales in this market the past week. These, together with smaller ones, brought the aggregate up to about 2500 tons. A Massachusetts machinery maker's inquiry for 500 to 1000 tons of No. 2 plain and 500 to 1000 tons of silicon 4.00 to 5.00, second quarter delivery, is the only one of any size in the market. Buffalo iron prices continue more or less unsettled. No. 2X is still available at \$20, furnace. Foundries maintain offers have been made at slightly less, but local furnace representatives deny the report. Eastern Pennsylvania No. 2X has been sold at \$21.50, furnace, which is about in line with Buffalo quotations. There is not enough doing in Virginia and Alabama iron to determine the basis of prices. Foreign iron is not pushed for sale as it was a month or so ago, due to the low prices quoted for Buffalo. An additional 418 tons of Indian iron was landed here the past week, bringing the total receipts of such iron for the month up to 3147 tons and for the year to date 19,714 tons.

We quote delivered prices on the basis of the latest reported sales as follows, having added \$3.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia and \$9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	\$25.65 to \$26.15
East. Penn., sil. 2.25 to 2.75	26.15 to 26.65
Buffalo, sil. 1.75 to 2.25	24.91 to 25.41
Buffalo, sil. 2.25 to 2.75	24.91 to 25.91
Virginia, sil. 1.75 to 2.25	29.42 to 29.92
Virginia, sil. 2.25 to 2.75	29.92 to 30.42
Alabama, sil. 1.75 to 2.25	31.60
Alabama, sil. 2.25 to 2.75	32.10

Cast Iron Pipe.—Hartford, Conn., has contracted with the Warren Foundry & Pipe Co. for 500 tons 8-in.

to 20-in. pipe, while Needham, Mass., has bought approximately 100 tons 18-in. Class A sewer pipe from the United States Cast Iron Pipe & Foundry Co. Fall River, Mass., is readvertising for bids on 600 tons of 6-in. to 12-in. pipe. So far as can be learned, Malden, Mass., has taken no action on its 175 ton 4-in. to 12-in. pipe requirements, readvertised recently. Pipe makers are well sold ahead on small pipe and holding firmly to list prices. Competition for large pipe business remains keen, however, and concessions can be obtained by buyers. Prices quoted openly on domestic pipe are: 4-in., \$62.10 a ton, delivered common Boston rate points; 6-in. to 12-in., \$57.10; 16-in. and larger, \$56.10. The usual differentials of \$5 on Class A pipe and gas pipe are quoted.

Coke.—Specifications against first half by-product foundry coke contracts are increasing. Although the situation is still very spotty, the improved demand for fuel is based on greater activity in the foundry industry. Some of the largest consumers, heretofore operating on reduced schedules, are now using their full quota of coke per week. Both the New England Coal & Coke Co. and the Providence Gas Co. continue to quote by-product foundry coke at \$11.50 a ton, delivered within New England.

Old Material.—Little transpired the past week to break the monotony of a dull and uninteresting scrap market. Activity among brokers is confined to the purchase of a car now and then, mostly of borings, turnings and mixed material. The decline in prices has been checked by reports from the West of a firmer feeling there. The supply of most kinds of scrap in this territory is comparatively small, consequently yard interests are not disposed to sell at going prices.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast	\$18.50 to \$19.50
No. 2 machinery cast	16.50 to 17.50
Stove plates	13.00 to 13.50
Railroad malleable	19.00 to 20.00

The following prices are offered per gross ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	\$10.50 to \$11.50
No. 1 railroad wrought	13.00 to 13.50
No. 1 yard wrought	12.00 to 12.50
Wrought pipe (1-in. in diam., over 2 ft. long)	10.50 to 11.00
Machine shop turnings	7.25 to 7.75
Cast iron borings, chemical	11.50 to 12.00
Cast iron borings, rolling mill	8.50 to 9.00
Blast furnace borings and turnings	7.00 to 7.50
Forge scrap	8.50 to 9.00
Bundled skeleton	8.50 to 9.00
Bundled cotton ties	8.50 to 9.00
Forged flashings	8.50 to 9.00
Shafting	17.00 to 17.50
Street car axles	17.00 to 17.50
Rails for rerolling	11.50 to 12.50
Scrap rails	10.50 to 11.50

San Francisco

Price Strength Untested in Quiet Market—Fresh Inquiries Very Small

SAN FRANCISCO, April 18 (By Air Mail).—Business continues quiet. Fresh inquiries are nearly all small. No awards of any size in either structural material or plates have been made during the past week, although bids are in on several jobs. Prices, although weak, are holding at about the same levels as quoted a week ago. There has been no business large enough to test present quotations, but there is, apparently, less tendency on the part of some sellers to shade the market.

The aggregate tonnage in small jobs is fairly substantial, but the absence of any large bookings is conspicuous.

The United States Bureau of Public Roads, Government Island, Oakland, Cal., will receive bids up to May 4 for the sale of surplus unused war material, which includes about 100 tons of 25-lb. rails, 1500 fish plates, 1200 steel railroad ties and 750 lb. of railroad spikes, besides a variety of other material.

Pig Iron.—No fresh business of any consequence has developed during the past week. Prices are unchanged. Small sales continue for both domestic and foreign irons, although most of the foundries in this vicinity are quiet. General manufacturing plants, however, that use iron are fairly active and are doing most of the buying that is being done at present.

•Utah basic	\$27.25 to \$28.25
•Utah foundry, sil.	1.75 to 2.25
•Scotch foundry	28.00 to 30.00
•English foundry	27.00 to 28.00
•Belgian foundry	26.00 to 27.00
•Dutch foundry	25.25 to 26.50
•Indian foundry	26.00 to 27.00
•Birmingham, Ala., foundry, sil.	2.75 to 3.25
	31.00

•Delivered San Francisco.

•Duty paid, f.o.b. cars San Francisco.

Shapes.—Awards of the past week amounted to only 840 tons, and fresh inquiries call for only 300 tons. A shipment of about 500 tons of foreign material arrived at this port the last part of the week. Continental shapes are being quoted at 2.20c., duty paid, c.i.f. The prevailing quotation by Eastern mills in this market is 2.55c., c.i.f., with 2.50c. as a possible figure for desirable tonnages. The largest award in this district during the week was for the Sunset Theater, San Francisco, 200 tons, to Herrick Iron Works. The largest award in Los Angeles was for 450 tons for a garage addition on South Hill Street, taken by Baker Iron Works. The Union Iron Works took 190 tons for a theater on Western Avenue, Los Angeles.

Plates.—Contracts closed during the week call for nearly 1000 tons. No fresh inquiries of any size have been made. Prices are relatively firm at 2.50c., c.i.f., although 2.45c. is still considered possible for desirable tonnages. There have been no jobs recently of a size to warrant a 2.45c. price, in the opinion of sellers, most of whom are adhering firmly to 2.50c. minimum.

Bars.—No jobs calling for 100 tons or more of reinforcing bars were let during the past week. Small jobs, however, are numerous, and the aggregate business calls for a fairly substantial tonnage. Prices for reinforcing bars are steady at 3.35c., base, carload, and 3.80c., base, l.c.l. Soft steel bars are holding at 2.55c. to 2.60c., base, and soft steel bands are 3.30c. to 3.35c., base.

Warehouse Business.—Buyers are still confining their orders to small lots, but there is a good consistent volume of small orders being placed. Prices are unchanged. Most of the general manufacturing plants are fairly active.

Merchant bars, \$3.20 base, per 100 lb.; merchant bars, $\frac{1}{2}$ in. and under, rounds, squares and flats, \$3.20 base, per 100 lb.; soft steel bands, \$4.15 base, per 100 lb.; angles, $\frac{1}{2}$ in. and larger x $1\frac{1}{2}$ in. to $2\frac{1}{2}$ in., inc., \$3.30 base, per 100 lb.; channels and tees, $\frac{1}{2}$ in. to $2\frac{1}{2}$ in., inc., \$3.90 base, per 100 lb.; angles, beams and channels, 3 in. and larger, \$3.15 base, per 100 lb.; tees, 3 in. and larger, \$3.30 base, per 100 lb.; universal mill plates, $\frac{1}{2}$ in. and heavier, stock lengths, \$3.30 base, per 100 lb.; spring steel, $\frac{1}{4}$ in. and thicker, \$6.30 base, per 100 lb.; wire nails, \$4 base, per 100 lb.

Coke.—Better interest is being shown. The Southern Pacific Co. has inquired for 600 tons for delivery in monthly shipments of 100 ton lots after May 1. A number of smaller inquiries have also been made during the week. Prices are unchanged.

English beehive, \$16 to \$18 at incoming dock, and English by-product, \$14 to \$15; Birmingham, Ala., by-product, \$19.50 to \$20.50 delivered; Wise County, Va., beehive, \$22 delivered.

St. Louis

Much First Quarter Pig Iron to Be Delivered in the Second Quarter

ST. LOUIS, April 21.—The biggest pig iron sale of the week was 200 tons made by the St. Louis Coke & Iron Co. for prompt shipment to an Indiana melter. The market continues weak as a result of lack of buying. The volume of business placed with melters during the first quarter did not equal their purchases of pig iron and they carried over into the second quarter more than they had expected. The result is that second quarter buying has been smaller than at any time in

the last ten years, men in the market say. The Granite City maker reduced its price to a range of \$22.50 to \$23, f.o.b. furnace. Northern iron is nominally unchanged but it is understood that concessions are being made by Chicago makers on actual sales. The price of Southern iron is unchanged, the situation there being helped considerably by comparatively heavy buying of pig iron by Southern and pipe manufacturers.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices \$2.16 freight from Chicago, \$3.28 from Florence and Sheffield (rail and water), \$5.17 from Birmingham, all rail, and \$1c. average switching charge from Granite City.

Northern fdy., sil. 1.75 to 2.25...	\$25.16 to \$25.66
Northern malleable, sil. 1.75 to 2.25	25.56 to 26.16
Basic	25.56 to 26.16
Alabama fdy., sil. 1.75 to 2.25 (rail)	26.16 to 27.17
Alabama fdy., sil. 1.75 to 2.25 (rail and water)	25.28
Tennessee fdy., sil. 1.75 to 2.25...	23.67
Granite City iron, sil. 1.75 to 2.25	23.31 to 23.81

Finished Iron and Steel.—The Missouri, Kansas & Texas Railroad has postponed until May the awarding of bids for 1600 cars and business generally from the railroads is disappointing. Fabricators of structural steel and users of steel generally are buying only for immediate needs and in smallest possible quantities. The Laclede Steel Company got the contract for 150 to 200 tons of reinforcing bars for the building of the Indianapolis (Ind.) War Department Building. The only other reinforcing job of consequence pending is a broad-wall garage, St. Louis, which will require 130 tons of reinforcing bars.

For stock out of warehouse we quote: Soft steel bars, 3.15c. per lb.; iron bars, 3.15c.; structural shapes, 3.25c.; tank plates, 3.45c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, cold rolled, one pass, 4.80c.; galvanized steel sheets, No. 28, 5.80c.; blank corrugated sheets, 4.95c.; galvanized, 5.95c.; cold-rolled rounds, shafting and screw stock, 3.95c.; structural rivets, 3.65c.; boiler rivets, 3.85c.; tank rivets, $\frac{1}{2}$ in. diameter and smaller, 70 per cent off list; machine bolts, 55 per cent; carriage bolts, 50 per cent; lag screws, 60 per cent; hot pressed nuts, squares, \$3.50; hexagons, blank or tapped, \$4 off list.

Coke.—With the falling off of the melt of pig iron has come a recession in the demand for coke. The prices, however, are unchanged. New prices are expected to be issued on domestic grades some time this month which is expected to revive buying for fall stocks. In the meantime there is absolutely no activity.

Old Material.—With the exception of rails, which consumers in the district are taking readily, there is no buying except small tonnages of old material. The market continues to decline—the reductions being from 50c. to \$2 a ton. New railroad lists issued during the week include Rock Island, 6000 tons; St. Louis & San Francisco, 800 tons; International Great Northern, 650 tons; Kansas City, Mexico & Orient, 300 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	\$13.00 to \$13.50
Rails for rolling	16.50 to 17.00
Steel rails less than 3 ft.	17.00 to 17.50
Relaying rails, 60 lb. and under	25.00 to 26.00
Relaying rails, 70 lb. and under	31.50 to 32.00
Cast iron car wheels	15.50 to 16.00
Heavy melting steel	14.50 to 15.00
Heavy shoveling steel	14.50 to 15.00
Frogs, switches and guards cut apart	15.00 to 15.50
Railroad springs	17.50 to 18.00
Heavy axles and tire turnings	11.00 to 12.00
No. 1 locomotive tires	17.25 to 17.75

Per Net Ton	
Steel angle bars	14.00 to 14.50
Steel car axles	16.00 to 16.50
Iron car axles	24.00 to 24.50
Wrought iron bars and transoms	18.00 to 18.50
No. 1 railroad wrought	12.50 to 13.00
No. 2 railroad wrought	12.50 to 13.00
Cast iron borings	10.75 to 11.00
No. 1 bushing	11.75 to 12.00
No. 1 railroad cast	15.50 to 16.00
No. 1 machinery cast	18.00 to 18.50
Railroad malleable	13.25 to 13.50
Machine shop turnings	7.50 to 8.00
Champion bundled sheets	8.00 to 8.50

Birmingham

Reports of Lower Prices on Pig Iron Do Not Arouse Much Interest

BIRMINGHAM, ALA., April 21.—Lower prices on pig iron reported during the past week did not arouse any selling movement, and the market still lags. The purchase of iron at \$20 and the resale iron of two weeks ago of several hundred tons as low as \$18.50 and \$19, are admitted. The fact that a small furnace interest in Tennessee has been selling at \$18.50 and \$19 on a Birmingham base is not taken seriously. Consumers are buying only for immediate needs and the aggregate is under the make. Iron is being placed on the yards, though the aggregate so far is not so great as it was eight months ago. One blast furnace in this district has been put on basic iron and one furnace was banked to permit of needed repairs for a week, so that the production this month is likely to show an unexpected reduction. It is intimated that if there is not a change in the market conditions, two or more blast furnaces may be shut down the first part of May.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	\$20.00
No. 1 foundry, 2.25 to 2.75 sil.	20.50
Basic	20.00
Charcoal, warm blast	30.00

Steel.—Gulf States Steel Company has reduced its open-hearth furnace output but finishing mills are going steadily. The Tennessee Coal, Iron & Railroad Co. and American Steel & Wire Co. mills are operating close to capacity. The Tennessee company is putting in its four open-hearth furnaces, being completed at the new mill at Fairfield, one by one. The sheet mill will not be completed until fall, original plans being enlarged on so that output will be doubled. Other developments, looking to production of smaller steel products, are being pushed to completion, this district to supply more railroad accessories than before. Fabricating plants of the district report many minor contracts coming in and keeping all busy. The Birmingham base on soft steel bars is 2.25c. to 2.35c.

Pipe.—Cast iron pressure pipe production continues around capacity and shipments steady. Quotations are \$40 per ton base, for 6-inch and over, though \$39 is still heard of. Production of pressure pipe will be materially increased early in May. The soil pipe market lags and much stock has piled up on yards. Three shops in Birmingham have shut down and others in the State are either down or limping in their operations. Two local shops are operating to capacity, six days in the week.

Coke.—No change in the activity of production and steady shipment of coke is noted in this district. Quotations are still on a \$5 per ton basis for foundry coke, both bee-hive and by-product.

Old Material.—Reductions of quotations are announced on old material in this district. Stocks on yards are in good shape but market, as a whole, is quiet with no promise of immediate improvement.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	\$15.00 to \$16.00
Heavy melting steel	13.00 to 14.00
Railroad wrought	12.00 to 13.00
Steel axles	17.00 to 18.00
Iron axles	18.00 to 19.00
Steel rails	13.00 to 14.00
No. 1 cast	16.50 to 17.00
Tramcar wheels	16.50 to 17.00
Car wheels	15.00 to 16.00
Stove plate	13.00 to 14.00
Machine shop turnings	7.00 to 8.00
Cast iron borings	8.00 to 9.00
Rails for rolling	16.50 to 17.00

In a recent statement the Virginia Iron, Coal & Coke Co. showed gross operating revenue for the first quarter of \$839,252. Net earnings after interest, etc., were \$217,306.

Cleveland

Michigan Central in Market for 11,000 Tons of Steel—General Demand Light

CLEVELAND, April 21.—The finished steel market shows virtually no change. The volume of new business continues light and buying is confined to small lots. Specifications on contracts are fair. The slowing down in the iron and steel industry has caused the American Steel & Wire Co. to blow out one of its Central furnaces in Cleveland, leaving two in blast, and the M. A. Hanna Co. to put out a Buffalo furnace. A Valley furnace may go out shortly. Cleveland steel plants expect to benefit from the decision of the Interstate Commerce Commission in the Jones & Laughlin case, as their understanding is that they will get the same reduction in rates to the St. Louis district that have been granted the Pittsburgh mills.

Following the weakening of prices on steel bars and structural material as reported last week, the market has settled down to a 2c. price, although some mills are still holding to 2.10c. for car lots. Plates are holding firmly to 2c., but mills that will not go below 2.10c. are finding it increasingly difficult to make small lot sales. The Michigan Central Railroad has an inquiry out for bridge work requiring 11,000 tons of structural steel. In Cleveland and this territory little new structural work is coming out. The Nickel Plate Railroad is inquiring for 10 switching engines. The Standard Oil Co. of Indiana has placed the 57 stills it recently inquired for with the Struthers-Wells Co., Warren, Pa. These will require 2100 tons of plates. A riveted pipe line is pending in Vancouver, B. C., which will require 7000 tons of plates.

Pig Iron.—Lake furnace prices have again declined another 50c. a ton on foundry and malleable iron following the reduction to \$20 in the Valley district and the market is weak. Lake furnaces are now quoting these grades at \$20.50 to \$21, depending on the point of delivery. In Michigan and western Ohio, \$21 is the prevailing price. Cleveland furnaces are on the \$21 basis, but would probably meet the Valley price for shipment to competitive points. The market in the northern Ohio territory continues very dull, the only demand being for small lots for immediate requirements. Outside of this immediate territory, the activity in the automotive field is stimulating the demand for pig iron. One producer sold 10,000 tons in foundry and malleable grades during the week, including 4000 tons to an automobile foundry for the second quarter. Among inquiries is one for 1000 tons for automobile work.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.02 freight rate from Jackson and \$6 rate from Birmingham:

Basic, Valley furnace.....	\$20.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25.....	\$21.50 to 22.00
Southern fdy., sil. 1.75 to 2.25.....	24.50 to 26.01
Malleable.....	21.50 to 22.00
Ohio silvery, 8 per cent.....	30.52
Standard low phos., Valley furnace.....	28.50

Iron Ore.—Several consumers are figuring on their iron ore requirements, but sales are light. It is too early to determine the effect of the 50c. price cut on some of the smaller mining companies that have been selling ore below regular prices, but it is the general opinion of the trade that a number of these companies will be forced to discontinue operations and that some of the other underground mines that have high costs and lost money with last year's prices will close down. The M. A. Hanna Co. will close down for an indefinite period its Ashland mine at Ironwood, Mich. The ore supply from this mine is running low and the company has decided to postpone further exploration on the property. With present prices the ore mining industry appears to have reached a status which will result in the elimination, at least for the present, of some of the high cost mines. If ore prices become stabilized, as is expected, this may have an effect on some of the high cost furnaces which, it is claimed, were able to

keep going by buying ore below the market when pig iron prices were low.

Ore Consumption.—Consumption of Lake Superior ore during March amounted to 5,490,245 tons, an increase of 490,549 tons over February, according to the monthly report of the Lake Superior Iron Ore Association. This compares with a consumption of 5,307,609 tons in March last year. The greatest amount consumed in any one month was in May, 1923, when furnaces melted 6,118,540 tons of Lake ore. There were 215 furnaces using Lake ore in blast on the last day of March, a decrease of 10 for the month. With this decrease in the number of active stacks, the consumption will show a falling off for February.

Bolts, Nuts and Rivets.—The demand for bolts and nuts is fair, but consumers as a rule are specifying only for early requirements. The best source of orders at present is the automotive industry. Prices are firm. Makers report that they are still getting steel bars on old 2c. contracts, so that their ability to buy steel at that price at present will not make any reduction in their production costs. Rivets are quiet. Concessions of \$2 a ton to the regular 2.60c. price are being made on large rivets.

Jobbers quote steel bars, 3.10c.; plates and structural shapes, 3.20c.; No. 28 black sheets, 4.35c.; No. 28 galvanized sheets, 5.45c.; No. 10 blue annealed sheets, 3.45c. to 3.60c.; cold-rolled rounds, 4c.; flats, squares and hexagons, 4.50c.; hoops and bands, 3.85c.; No. 9 annealed wire, \$3.05 per 100 lb.; No. 9 galvanized wire, \$3.50 per 100 lb.; common wire nails, \$3.15 base per 100 lb.

Semi-Finished Steel.—On a local inquiry for 650 tons of billets, Youngstown mills quoted \$35.50, Youngstown, but the purchaser was able to buy at a slightly lower price.

Sheets.—Mills find the market in a very unsatisfactory condition from the standpoint of both volume of business and prices. The automobile industry is taking a fairly large amount of sheets and the Ford Motor Co. is understood to have purchased a round tonnage of automobile body sheets during the week. An Ohio barrel manufacturer inquired for 1200 tons of blue annealed and black sheets which are reported placed. The volume of business is very light. Most consumers are buying only in small lots as needed and there has been further curtailment of production by Ohio mills. Blue annealed sheets have declined \$2 a ton and are now commonly quoted at 2.50c. Black sheets are also weaker, now ranging from 3.30c. to 3.40c., although quotations of 3.25c. have appeared for spot business. Galvanized sheets are holding better than other grades, with 4.50c. the usual quotation. Automobile body sheets are firm at 4.40c.

Warehouse Business.—Jobbers report an improvement in business which they attribute to the fact that some consumers are not placing mill orders because of unsettled prices and when they need material quickly they buy from warehouse. Warehouse prices are fairly firm.

Old Material.—A Cleveland consumer has purchased a round tonnage of blast furnace scrap at a reported price of \$14 for borings and turnings and dealers are offering \$13.75 for these grades to fill this contract. The market is weak on borings and turnings and bushing, which have declined 25c. to 75c. a ton. Other prices have not changed. While there is little demand, some of the mills are showing more interest in scrap at present prices and more activity is looked for. Some dealers are reported to be buying small lots of scrap at present prices for yard stocks.

We quote dealers' price f.o.b. Cleveland per gross ton:

Heavy melting steel.....	\$16.25 to \$16.50
Rolls for rolling.....	16.50 to 16.75
Rolls under 3 ft.....	18.75 to 19.00
Low phosphorus melting.....	19.00 to 19.50
Cast iron borings.....	12.00 to 12.50
Machine shop turnings.....	12.00 to 12.50
Mixed borings and short turnings.....	12.00 to 12.50
Compressed sheet steel.....	13.50 to 14.00
Railroad wrought.....	12.25 to 12.75
Railroad malleable.....	19.00 to 19.50
Light bundled sheet stampings.....	11.50 to 12.00
Steel axle turnings.....	14.50 to 14.75
No. 1 cast.....	18.25 to 18.75
No. 1 bushing.....	12.00 to 12.50
Drop forge flashings.....	12.25 to 12.50
Railroad grate bars.....	14.00 to 14.25
Stove plate.....	14.00 to 14.25
Pipes and flues.....	7.50 to 8.00

Philadelphia

Some Finished Products Show Gain— Foundry Iron Prices Lower—Steel Bars Now at 2c.

PHILADELPHIA, April 21.—The fact that steel orders are mostly for small lots somewhat obscures the final result, which is that the aggregate in many lines is fairly good. To some extent there has been an improvement in the past week or two and many of the mills now see that April orders and specifications will be better than those of March. Plates continue to lag, but other products, almost without exception, show some gain. The slightly increasing business, however, is not strengthening prices. On the contrary the tendency is toward lower levels, but the process is slow and orderly. Steel bars are being sold by several mills at 2c., Pittsburgh, or 2.32c., Philadelphia, and the decline from 2.10c. really was in sight when certain mills extended first quarter contracts at 2c. into second quarter without change of price. On wire nails \$2.75 per keg, base, is now being generally quoted, following the reduction to that figure announced last Friday by the American Steel & Wire Co. Structural shapes have been sold at a 1.90c., Pittsburgh base, but generally the market continues at from 2c. to 2.10c. Sheets continue weak, with 2.50c., Pittsburgh, now a definite quotation on blue annealed. Weakness also prevails in the pig iron market. No. 2 X has been quoted at \$21.75, furnace.

Pig Iron.—Further weakness in foundry pig iron has developed within the past week and local sellers point to the low prices quoted on Buffalo iron as a contributing factor in weakness in this district. In meeting the competition of Buffalo furnaces in New England and in northern Pennsylvania and New Jersey the eastern Pennsylvania furnaces have been obliged to get away from the \$22 base, which they have been trying to maintain during the last few weeks. However, concessions have also been offered on inquiries from consumers located at points where Buffalo competition is not a factor. On 600 tons inquired for a few days ago there were quotations of \$21.75, furnace, on No. 2 X. The prospective buyer was apparently alarmed by the extreme anxiety of some of the furnaces for business and did not buy. The differential between No. 2 plain and No. 2 X has been temporarily wiped out by some furnaces, which will sell either grade at the same price.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rate varying from 76c. to \$1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$22.51 to \$23.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	22.51 to 23.63
East. Pa. No. 1X.....	23.01 to 24.13
Virginia No. 2 plain, 1.75 to 2.25 sil.	29.17 to 29.67
Virginia No. 2X, 2.25 to 2.75 sil.	29.67 to 30.17
Basic delivered eastern Pa.....	22.75 to 23.25
Gray forge	23.00 to 23.50
Malleable	24.00 to 24.50
Standard low phos. (f.o.b. furnace)	25.00 to 26.00
Copper bearing low phos. (f.o.b. furnace)	25.00 to 26.00

Various grades of foreign pig iron are being offered at approximately the prices quoted below, all quotations being f.o.b. cars, Philadelphia:

Indian foundry iron, 2 to 2.50 per cent sil.	\$23.00 to \$23.50
Indian foundry iron, 2.25 to 3 per cent sil.	23.50 to 24.00
English foundry iron, 2 to 2.50 per cent sil.	22.50 to 23.00
Continental foundry, 2.50 to 3 per cent sil.	22.50 to 23.00
English low phos., copper free...	26.00

Billets.—The demand for strictly rerolling billets is almost nil, but some buyers demand billets of special analysis or for forging purposes at practically the rerolling billet price. Eastern mills have not met the lowest quotations of Pittsburgh and Valley mills, but cepted by an eastern mill.

Plates.—Eastern plate mills are receiving a slightly

better volume of orders, but all are small. Operations are at about the same rate, varying from 30 to 50 per cent. Most mills adhere firmly to 2c., Pittsburgh, and while there are frequent reports of sales at 1.95c., there is no confirmation obtainable from sellers.

Structural Shapes.—A wide variety of prices continues to rule in the structural shape market. Extremely low prices have been quoted on foreign steel, in one instance 1.85c. per lb., c.i.f. Atlantic port, being named. The lowest price named by an American mill, so far as is definitely known here, is 1.90c., Pittsburgh, and, of course, this price has developed only in connection with a few very desirable lots. The usual range is 2c. to 2.10c., Pittsburgh basis. The Reading Railroad has let the contract for a shop at Reading, requiring 2500 tons of steel, to the McClintic-Marshall Co. A court decision affecting the letting of the contract for a section of the Broad Street subway has upheld the position of the city authorities and the award will doubtless be made soon to the Keystone State Construction Co. About 14,000 tons of steel is required for this contract.

Bars.—Steel bars are now available at 2c., Pittsburgh, to nearly all buyers. A report that a 1.90c. price has been quoted on some tonnages is met in one quarter with the statement that one of the largest buyers in the East has just paid 2c., Pittsburgh, on 500 tons.

Sheets.—Blue annealed sheets are now offered by a few mills at 2.50c., black sheets are available at 3.30c. to 3.40c. and galvanized at 4.50c. to 4.60c., all Pittsburgh base.

Warehouse Business.—Local steel jobbers have made a change in their method of quoting cold-rolled steel, now naming 4.15c. per lb. on both rounds and hexagons, whereas hexagons recently took a price 50c. per 100 lb. higher. Squares and flats are quoted at 4.65c. Warehouses have eliminated the quantity differentials, which were \$10 a ton on lots under 1000 lb. of a size and \$4 a ton on lots from 1000 to 2000 lb. of a size.

Imports.—Pig iron imports at Philadelphia last week were larger than usual, totaling 6758 tons, of which 4158 tons came from India, 2555 tons from England and 45 tons from Luxemburg. Structural steel from Belgium amounted to 720 tons.

Old Material.—Although the scrap market has been dragging bottom for weeks, prices have shown a further decline on many items within the past week. The demand is so light that the available supply is being pressed on the market faster than consumers care to absorb it. It seems to scrap brokers that the decline has been overdone, but there is no turn in sight yet. A development is the interest of some German steel companies in American steel scrap, one company having sent representatives to this country to buy. There is a very great scarcity of scrap in Germany, but it is doubtful whether much will move from this country, as the price quoted delivered at a German steel plant, even with the low prices now in effect here, is close to \$24.

We quote for delivery consuming points in this district as follows:

No. 1 heavy melting steel	\$14.50 to \$15.50
Scrap rails	14.50 to 15.50
Steel rails for rolling.....	17.50 to 18.00
No. 1 low phos. heavy 0.04 and under	20.00 to 21.00
Couplers and knuckles	19.00 to 19.50
Rolled steel wheels	19.00 to 19.50
Cast-iron car wheels.....	17.50 to 18.00
No. 1 railroad wrought.....	17.50 to 18.00
No. 1 yard wrought.....	16.50 to 17.00
No. 1 forge fire	14.00 to 14.50
Bundled sheets (for steel works)	12.00
Mixed borings and turnings (for blast furnace use)	11.50 to 12.00
Machine shop turnings (for steel works use)	12.00
Machine shop turnings (for rolling mill use).....	12.50
Heavy axle turnings (or equivalent)	14.50 to 15.50
Cast borings (for steel works and rolling mill).....	12.50 to 13.00
Cast borings (for chemical plants)	17.00 to 18.00
No. 1 cast.....	17.00 to 17.50
Heavy breakable cast (for steel plants)	15.00 to 15.50
Railroad grate bars.....	12.50
Stove plate (for steel plant use)	12.50
Wrought iron and soft steel pipes and tubes (new specifications)	14.50 to 15.00
Shafting	21.00 to 22.00
Steel axles	21.50 to 22.50

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)		Lead		Zinc	
	Lake	Electrolytic*	New York	New York	St. Louis	New York	St. Louis	
April 15.....	13.62½	13.25	50.50	8.00	7.65	7.35	7.00	
16.....	13.50	13.12½	50.50	7.95	7.60	7.30	6.95	
17.....	13.37½	13.00	51.50	7.90	7.55	7.17½	6.82½	
18.....	13.37½	13.00	51.50	7.85	7.50	7.20	6.85	
20.....	13.37½	13.00	51.37½	7.75	7.40	7.20	6.85	
21.....	13.37½	13.12½	52.50	7.75	7.40	7.15	6.80	

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, April 21.

The general situation has changed but little and most of the markets are still inactive. Copper has touched the lowest level for the year, but the tin market has been moderately active, with prices advancing. Lead has again lost ground and zinc has touched new low levels, both markets being dull and weak.

Copper.—Statistics of the copper industry, which have been rather voluminous lately, have emphasized the impression that production is in excess of consumption. As a result, consumers, many of whom are none too busy, have bought as little as they could and quotations have fallen to levels the lowest in some time. Late last week electrolytic copper was sold at 13.25c., delivered, which is the low point for the year. Today, however, the market has a better tone and it is stated that nothing better than 13.37½c. can now be done. There is a little better interest on the part of consumers, but only fair sales are reported. Copper for export, which recently was available at 13.20c., f.a.s., is today at least 13.30c., which compares with 13.60c. to 13.65c. only a week ago. Lake copper is quoted at 13.37½c., delivered.

Tin.—Business in Straits tin has been in light volume, the total not exceeding 500 tons for the week. On Thursday, April 16, there was considerable agitation as to a possible shortage by the end of May, which resulted in a fairly active market, with sales of about 250 tons. Yesterday the market was firm at the close, with sales at about 150 tons, and today there was considerable interest shown, with business totaling at least 200 tons. The fact that the market is only moderately active at the fairly low prices is taken to indicate that consumers are pretty well covered. Spot Straits tin today was quoted at 52.50c., New York, due to strength in London, where prices were about £5 higher per ton than a week ago, with spot standard quoted at £234 15s., future standard at £237 15s. and spot Straits at £240 15s. The Singapore price yesterday was £239 10s. Arrivals thus far this month have been 3105 tons, with 3710 tons reported afloat.

Lead.—Prices the lowest for the year developed during the week. The leading interest reduced its contract price twice, the first time to 8c. on April 16 and the second time to 7.85c., New York, on April 18. In both cases the outside market has kept ahead by being lower and quotations today by the independents are 7.40c., St. Louis, or 7.75c., New York. Production was stimulated when lead was above 10c. and supplies are ample. Buyers see low rather than high prices and hence take only what is necessary.

Zinc.—New low levels for the year have developed in this market and prime Western is available at 6.80c., St. Louis, or 7.15c., New York. While interest on the part of consumers is a little better today, there is no life to the market. Some report a little better tone, with the expectation that the bottom on this movement has been touched. An improved prospect for export business is also indicated.

Nickel.—Wholesale lots of shot and ingot nickel are quoted at 31c. to 32c. per lb., with electrolytic nickel available at 38c.

Antimony.—Chinese metal in wholesale lots for

prompt and early delivery is available at 11.87½c., New York, duty paid. The sharp decline is explained as due to the dumping of some lots recently on the market.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27c. to 28c. per lb., delivered.

Old Metals.—The market is weak and business is quiet. Dealers' selling prices are as follows in cents per lb.:

Copper, heavy and crucible	12.75
Copper, heavy and wire	11.75
Copper, light and bottoms	10.25
Heavy, machine composition	9.75
Brass, heavy	8.00
Brass, light	6.75
No. 1 red brass or composition turnings	9.00
No. 1 yellow rod brass turnings	8.50
Lead, heavy	7.25
Lead, tea	5.75
Zinc	4.50
Cast aluminum	19.00
Sheet aluminum	19.00

Chicago

APRIL 21.—With buying at a very low level, all of the virgin metals except tin have declined. Tin, on the other hand, being largely controlled by conditions abroad, has advanced slightly. Among the old metals lead pipe has receded. We quote, in carload lots: Lake copper, 13.62½c.; tin, 52.25c.; lead, 7.45c.; zinc, 6.90c.; in less than carload lots, antimony, 14c. On old metals we quote copper wire, crucible shapes and copper clips, 10.25c.; copper bottoms, 9c.; red brass, 8c.; yellow brass, 7c.; lead pipe, 6.25c.; zinc, 4c.; pewter, No. 1, 28c.; tin foil, 30c.; block tin, 38c.; all buying prices for less than carload lots.

JAPAN BUYS FRENCH RAILS

American Mills Get No Part of 100-Mile Order —Tin Plate Inquiry Expected

NEW YORK, April 20.—Better conditions are developing in the money market in Japan, so that with less restricted credit, some light buying of tin plate for stock and electrical sheets by the manufacturers is expected to develop before long. Chinese business is more active but no particularly large orders are noted. Sugar centrales continue to make purchases of equipment for seasonal replacement and expansion. Importers of steel for sale to American consumers are quite as active as the exporters.

One of the largest recent awards by a Japanese company was the order for 50 miles of 100-lb. rails for August-September delivery, placed by the South Manchuria Railway Co. with a French mill at a price of about \$34.25 per ton, c.i.f. Dairen. This was the second half of an inquiry for 100 miles of rails, the first part of the order going to the Government works in Japan for June-July delivery. Purchase of the four miles of 91-lb. high T-rails, one mile of 108-lb. guard rails and one mile of 93-lb. grooved rails by the Nagoya Electric Railway has been postponed and a new inquiry will probably be issued in a few weeks.

The inquiry for tin plate of the Nippon Oil Co. is expected to appear in the next fortnight. Quotations of American mills on tin plate for export to Japan continue unchanged at \$5.90 to \$6 per base box. Some light inquiry of Japanese electrical equipment manufacturers for electrical sheets is reported and more substantial lots of such sheets are expected to be in the market before long. It is noteworthy, however, that the price of British mills on electrical sheets is about \$5 per ton less than the American quotation.

Stockholders of the Lumen Bearing Co., at a special meeting April 18, ratified sale of the properties in Youngstown and Pittsburgh, to the Falcon Bronze Co., Youngstown. The formal transfer of ownership took place this week. This sale means the virtual withdrawal of the Lumen company from the Youngstown field.

Prices of Finished Iron and Steel Products

(Carload Lots)

Tank Plates

F.o.b. Pittsburgh mill, base, per lb.....2c. to 2.10c.
F.o.b. Chicago, base, per lb.....2.20c.

Structural Shapes

F.o.b. Pittsburgh mills, base, per lb.....2c. to 2.10c.
F.o.b. Chicago, base, per lb.....2.20c.

Iron and Steel Bars

Soft steel bars f.o.b. P'gh mills, base, per lb.....2c. to 2.10c.
Soft steel bars f.o.b. Chicago, base, per lb.....2.10c. to 2.20c.
Reinforcing steel bars f.o.b. P'gh mills, base, per lb.....2.10c.
Rail steel bars, f.o.b. Chicago district mills, base, per lb.....2.10c.
Common iron bars, f.o.b. Chicago, base, per lb.....2.10c.
Refined iron bars, f.o.b. P'gh mills, base, per lb.....3c. to 3.10c.
Common iron bars, eastern Pa. mill, base, per lb.....2.10c.

Hot-Rolled Flats

Hoops, base, per lb., Pittsburgh.....2.40c.
Bands, base, per lb., Pittsburgh.....2.40c.
Strips, 6 in. and narrower, base, per lb., Pittsburgh.....2.40c.
Strips, wider than 6 in., base, per lb., Pittsburgh.....2.20c.
Strips, base, per lb., Chicago.....2.55c. to 2.60c.

Cold-Finished Steel

Screw stock and shafting, f.o.b. P'gh mills, base, per lb.....2.70c.
Screw stock and shafting, f.o.b. Chicago, base, per lb.,
2.70c. to 2.80c.
Screw stock, base, per lb., Cleveland.....2.75c. to 2.80c.
Shafting, ground, f.o.b. mill, base, per lb.....3.10c.
Strips, f.o.b. P'gh mills, base, per lb.....4c.
Strips, f.o.b. Cleveland mills, base, per lb.....4c.
Strips, f.o.b. Chicago, base, per lb.....4.30c. to 4.34c.
Strips, f.o.b. Worcester mills, base, per lb.....4.15c.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

Nails, base, per keg.....\$2.75 to \$2.85
Galvanized nails, 1-in. and longer, base plus.....2.25
Galvanized nails, shorter than 1 in., base plus.....2.50
Bright plain wire, base, No. 9 gage, per 100 lb.....2.50 to 2.60
Annealed fence wire, base, per 100 lb.....2.65 to 2.75
Spring wire, base, per 100 lb.....3.50 to 3.60
Galvanized wire, No. 9, base, per 100 lb.....3.10 to 3.20
Galvanized barbed, base, per 100 lb.....3.45 to 3.55
Galvanized staples, base, per keg.....3.45 to 3.55
Painted barbed wire, base, per 100 lb.....3.20 to 3.30
Polished staples, base, per keg.....3.20 to 3.30
Cement coated nails, base, per count keg.....2.10 to 2.15
*Bale ties, carloads, to jobbers.....75, 15 and 5 per cent off list
*Bale ties, carloads to retailers.....75, 10 and 6 per cent off list
Woven wire fence, base, per net ton to retailers.....\$65.00 to \$67.00

Chicago district mill prices are \$2 per ton above the foregoing and Chicago delivered prices are \$3 per ton above the prices f.o.b. Cleveland and Pittsburgh. Birmingham mill prices \$3 a ton higher; Worcester, Mass., mill \$3 a ton higher on production of that plant, and Duluth, Minn., mills \$2 a ton higher; Anderson, Ind., \$1 higher.

*F.o.b. Cleveland.

Sheets

Blue Annealed
(base) per lb.

Nos. 9 and 10, f.o.b. Pittsburgh.....2.50c. to 2.70c.
Nos. 9 and 10 (base) per lb., f.o.b. Chicago dist. mills
2.60c. to 2.70c.

Box Annealed, One Pass Cold Rolled

No. 28 (base) per lb., f.o.b. Pittsburgh.....3.30c. to 3.50c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill.....3.40c. to 3.60c.

Galvanized

No. 28 (base) per lb., f.o.b. Pittsburgh.....4.50c. to 4.60c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill.....4.60c. to 4.70c.

Tin-Mill Black Plate

No. 28 (base) per lb., f.o.b. Pittsburgh.....3.40c. to 3.50c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill.....3.60c.

Automobile Body Sheets

No. 22 (base) per lb., f.o.b. Pittsburgh.....4.40c.

Long Ternes

No. 28 (base) 8-lb. coating, per lb., f.o.b. mill.....4.90c.

Tin Plate

Standard cokes, per base box, f.o.b. Pittsburgh district mills.....\$5.50
Standard cokes, per base box f.o.b. Chicago district mills.....5.60
Standard cokes, per base box f.o.b. Elwood, Ind.....5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)
(Per Package, 20 x 28 in.)

8-lb. coating, 100 lb. base.....\$11.20	20-lb. coating I. C.....\$15.50
8-lb. coating I. C.....11.50	25-lb. coating I. C.....17.00
15-lb. coating I. C.....14.35	30-lb. coating I. C.....18.35
	40-lb. coating I. C.....20.35

Rivets

Large, f.o.b. P'gh and Cleveland mills, base, per 100 lb.....\$2.60
Large, f.o.b. Chicago, base, per 100 lb.....2.75
Small, f.o.b. Pittsburgh.....70, 10, 5 per cent off list
Small, Cleveland.....70 and 10 to 70, 10 and 5 per cent off list
Small, Chicago.....70 to 70 and 10 per cent off list

Rails and Track Equipment

(F.o.b.)

Rails, standard, per gross ton.....\$43.00
Rails, light, billet, base, per lb.....1.75c. to 1.80c.
Rails, light rail steel, base, per lb.....1.65c. to 1.75c.
Spikes, $\frac{1}{2}$ in. and larger, base, per 100 lb.....\$2.80 to \$3.10
Spikes, $\frac{1}{2}$ in. and smaller, base, per 100 lb.....3.10 to 3.40
Spikes, boat and barge, base, per 100 lb.....3.25
Track bolts, all sizes, base, per 100 lb.....3.90 to 4.25
Tie plates, per 100 lb.....2.35 to 2.60
Angle bars, base, per 100 lb.....2.75

Welded Pipe

(F.o.b. Pittsburgh district mills)

Butt Weld

Inches	Steel	Galv.	Inches	Iron	Galv.
$\frac{1}{8}$	45	19 $\frac{1}{2}$	$\frac{1}{8}$ to $\frac{1}{4}$	22	+39
$\frac{1}{4}$ to $\frac{3}{8}$	51	25 $\frac{1}{2}$	$\frac{1}{2}$	28	2
$\frac{1}{2}$	56	42 $\frac{1}{2}$	$\frac{3}{4}$	28	11
$\frac{3}{4}$	60	48 $\frac{1}{2}$	1 to 1 $\frac{1}{2}$	30	18
1 to 3.....	62	50 $\frac{1}{2}$			

Lap Weld

2.....	55	43 $\frac{1}{2}$	2.....	23	7
2 $\frac{1}{2}$ to 6.....	59	47 $\frac{1}{2}$	2 $\frac{1}{2}$	26	11
7 and 8.....	56	43 $\frac{1}{2}$	3 to 6.....	28	13
9 and 10.....	54	41 $\frac{1}{2}$	7 to 12.....	26	11
11 and 12.....	53	40 $\frac{1}{2}$			

Butt Weld, extra strong, plain ends

$\frac{1}{8}$	41	24 $\frac{1}{2}$	2 to 3.....	61	50 $\frac{1}{2}$
$\frac{1}{4}$ to $\frac{3}{8}$	47	30 $\frac{1}{2}$	$\frac{1}{4}$ to $\frac{1}{2}$	+11	+54
$\frac{1}{2}$	53	42 $\frac{1}{2}$	$\frac{1}{2}$	21	7
$\frac{3}{4}$	58	47 $\frac{1}{2}$	$\frac{3}{4}$	28	12
1 to 1 $\frac{1}{2}$	60	49 $\frac{1}{2}$	1 to 1 $\frac{1}{2}$	30	14

Lap Weld, extra strong, plain ends

2.....	53	42 $\frac{1}{2}$	2.....	23	9
2 $\frac{1}{2}$ to 4.....	57	46 $\frac{1}{2}$	2 $\frac{1}{2}$ to 4.....	29	15
4 $\frac{1}{2}$ to 6.....	56	45 $\frac{1}{2}$	4 $\frac{1}{2}$ to 6.....	28	14
7 to 8.....	52	39 $\frac{1}{2}$	7 to 8.....	21	7
9 and 10.....	45	32 $\frac{1}{2}$	9 to 12.....	16	2
11 and 12.....	44	31 $\frac{1}{2}$			

To the large jobbing trade the above discounts on steel pipe are increased (on black) by one point, with supplementary discount of 5 per cent and (on galvanized) by $\frac{1}{2}$ points, with supplementary discount of 5 per cent. On iron pipe, both black and galvanized, the preferentials to large jobbers are 1, 5 and 2 $\frac{1}{2}$ per cent beyond the above discount.

Note—The above discounts on steel pipe also apply at Lorain and Youngstown, Ohio, and Wheeling, W. Va. Chicago district mills have a base 2 points less. Chicago delivered base $\frac{1}{2}$ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point having the lowest rate to destination.

Boiler Tubes

(F.o.b. Pittsburgh)

Lap Welded Steel	Charcoal Iron
2 to 2 $\frac{1}{4}$ in.....	27
2 $\frac{1}{2}$ to 2 $\frac{3}{4}$ in.....	37
3 in.....	40
3 $\frac{1}{4}$ to 3 $\frac{1}{2}$ in.....	42 $\frac{1}{2}$
4 to 13 in.....	46

Beyond the above discounts, 5 fives extra are given on lap welded steel tubes and 2 tens on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn	Hot-Rolled
1 in.....	60
1 $\frac{1}{4}$ and 1 $\frac{1}{2}$ in.....	52
1 $\frac{3}{4}$ in.....	36
2 and 2 $\frac{1}{4}$ in.....	31
2 $\frac{1}{2}$ and 2 $\frac{3}{4}$ in.....	39

2 and 2 $\frac{1}{4}$ in.....	34	3 $\frac{1}{4}$ and 3 $\frac{1}{2}$ in.....	50
2 $\frac{1}{2}$ and 2 $\frac{3}{4}$ in.....	42	4 in.....	53
3 in.....	48	4 $\frac{1}{2}$, 5 and 6 in.....	48

Less carloads, 4 points less. Add \$3 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Carbon under 0.30 base.....85 to 87 per cent off list
Carbon 0.30 to 0.40 base.....83 to 85 per cent off list
Plus usual differentials and extra for cutting. Warehouse discounts range higher.

Seamless Locomotive and Superheater Tubes

Cents per Ft.	Cents per Ft.
2-in. O.D. 12 gage.....	14 $\frac{1}{2}$
2-in. O.D. 11 gage.....	15
2-in. O.D. 10 gage.....	16
2 $\frac{1}{4}$ -in. O.D. 12 gage.....	16
2 $\frac{1}{4}$ -in. O.D. 11 gage.....	17
2 $\frac{1}{2}$ -in. O.D. 10 gage.....	18
3-in. O.D. 7 gage.....	33
1 $\frac{1}{2}$ -in. O.D. 9 gage.....	15
5 $\frac{1}{2}$ -in. O.D. 9 gage.....	50
5 $\frac{1}{2}$ -in. O.D. 9 gage.....	52

Prices of Iron and Steel Products and Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 51.50 per cent iron.....	\$4.55
Old range non-Bessemer, 51½ per cent iron.....	4.40
Mesabi Bessemer, 51.50 per cent iron.....	4.40
Mesabi non-Bessemer, 51.50 per cent iron.....	4.25
High phosphorus iron, 51.50 per cent.....	4.15

Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian.....	9.50c. to 10c.
Iron ore, Swedish, average 66 per cent iron.....	9.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus.....	44c.
Manganese ore, Brazilian or Indian, nominal Tungsten ore, high grade, per unit, in 60 per cent concentrates.....	42c.
Chrome ore, Indian basic, 48 per cent Cr ₂ O ₃ , crude, per ton, c.i.f., Atlantic seaboard....	\$9.00 to \$11.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS ₃ , New York.....	22.00
	80c.

Coke and Coal (Per Net Ton)

Furnace coke, f.o.b. Connellsville prompt.....	\$3.00 to \$3.10
Foundry coke, f.o.b. Connellsville prompt.....	4.00 to 4.50
Mine run steam coal, f.o.b. W. Pa. mines.....	1.50 to 2.00
Mine run coking coal, f.o.b. W. Pa. mines.....	1.50 to 1.75
Mine run gas coal, f.o.b. W. Pa. mines.....	2.00 to 2.25
Steam slack, f.o.b. W. Pa. mines.....	1.40 to 1.50
Gas slack, f.o.b. W. Pa. mines.....	1.50 to 1.60

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton.....	\$115.00
Ferromanganese, foreign, 80 per cent, f.o.b. Atlantic port, duty paid.....	115.00
Ferrosilicon, 50 per cent, delivered.....	\$82.50 to 85.00
Ferrosilicon, 75 per cent.....	145.00 to 147.50
Ferrotungsten, per lb. contained metal.....	90c. to 95c.
Ferrochromium, 4 per cent carbon and up, 60 to 70 per cent Cr., per lb. contained Cr. delivered.....	11.50c.
Ferrovanadium, per lb. contained vanadium.....	\$3.50 to \$4.00
Ferrocobalt, per lb. contained cobalt, per net ton.....	200.00

Spiegeleisen, Bessemer Ferrosilicon and Silvery Iron

(Per gross ton furnace unless otherwise stated)

Spiegeleisen, domestic, 19 to 21 per cent.....	\$33.00
Spiegeleisen, domestic, 16 to 19 per cent.....	32.00
Ferrosilicon, Bessemer, 10 per cent; \$35.50; 11 per cent, \$37.50; 12 per cent, \$39.50; electric furnace ferrosilicon, 10 to 14 per cent, \$42; furnace with an advance of \$1 per unit for material above 10 per cent.	
Silvery iron, 6 per cent, \$25; 7 per cent, \$26; 8 per cent, \$27.50; 9 per cent, \$29.50; 10 per cent, \$31.50; 11 per cent, \$33.50; 12 per cent, \$35.50.	

Fluxes and Refractories

Fluorspar, 80 per cent and over calcium fluoride, not over 5 per cent silica, per net ton, f.o.b. Illinois and Kentucky mines.....	\$18.00 to \$19.00
Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, per net ton, f.o.b. Illinois and Kentucky mines.....	19.00 to 20.00
Fluorspar, foreign, 85 per cent calcium fluoride, not over 5 per cent silica, c.i.f. Philadelphia, duty paid, per net ton.....	18.00
Per 1000 f.o.b. works:	
Fire Clay	
High Duty	
Pennsylvania.....	\$43.00 to \$46.00
Maryland.....	48.00 to 50.00
Ohio.....	48.00 to 46.00
Kentucky.....	43.00 to 45.00
Illinois.....	43.00 to 45.00
Missouri.....	45.00 to 48.00
Ground fire clay, per ton.....	6.50 to 7.50
Silica Brick:	
Pennsylvania.....	40.00
Chicago.....	49.00
Birmingham.....	54.00
Silica clay, per ton.....	8.00 to 9.00
Magnesite Brick:	
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.).....	65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.).....	40.00
Chrome Brick:	
Standard size, per net ton.....	48.00

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland and Chicago)

Machine bolts, small rolled threads.. 50 and 10 per cent off list	
Machine bolts, all sizes, cut threads, 50, 10 and 10 per cent off list	
Carriage bolts, smaller and shorter, rolled threads, 50, 10 and 10 per cent off list	
Carriage bolts, cut threads, all sizes.. 50 and 10 per cent off list	
Eagle carriage bolts..... 65 and 10 per cent off list	
Lag bolts..... 60, 10 and 10 per cent off list	
Plow bolts, Nos. 1, 2 and 3 heads..... 50 and 10 per cent off list	
Other style heads..... 30 per cent extra	

Machine bolts, c.p.c. and t. nuts, ¾ x 4 in., 45, 10 and 5 per cent off list

Larger and longer sizes.....	45, 10 and 5 per cent off list
Hot-pressed nuts, blank or tapped, square.....	40c. off list
Hot-pressed nuts, blank or tapped, hexagons.....	4.40c. off list
C.p.c. and t. square or hex. nuts, blank or tapped.....	4.10c. off list
Bolt ends with hot pressed nuts.....	50, 10 and 10 per cent off list
Bolt ends with cold pressed nuts.....	45, 10 and 5 per cent off list
Washers.....	6c. to 5.50c. off list
*F.o.b. Chicago and Pittsburgh.	

The discount on machine, carriage and lag bolts is 5 per cent less than above for less than car lots. On hot pressed and cold punched nuts the discount is 25c. less per 100 lb. than quoted above for less than car lots.

(Quoted with freight allowed within zone limits)

Semi-finished hex. nuts:	
¾ in. and smaller, U. S. S.....	80, 10 and 5 per cent off list
¾ in. and larger, U. S. S.....	75, 10 and 5 per cent off list
Small sizes, S. A. E.....	80, 10, 10 and 5 per cent off list
S.A.E., ¾ in. and larger.....	75, 10, 10 and 5 per cent off list
Stove bolts in packages.....	80 and 5 per cent off list
Stove bolts in bulk.....	80 and 5 and 2½ per cent off list
Tire bolts.....	50, 10 and 5 per cent off list

Semi-Finished Castellated and Slotted Nuts

(Prices delivered within specified territories)

(To jobbers and consumers in large quantities)

Per 100 Net		Per 100 Net	
S. A. E.	U. S. S.	S. A. E.	U. S. S.
¾-in.	\$0.44	¾-in.	\$2.35
¾-in. ....	.515	¾-in.	3.60
¾-in. ....	.62	¾-in.	5.55
¾-in. ....	.79	¾-in.	8.90
¾-in.	1.01	¾-in.	12.40
¾-in.	1.38	¾-in.	18.35
¾-in.	1.70	¾-in.	21.00

Larger sizes—Prices on application.

Cap and Set Screws

(Freight allowed within zone limits)

Milled cap screws.....	80, 10 and 5 per cent off list
Milled standard set screws, case hardened, 80 and 10 per cent off list	
Milled headless set screws, cut thread, 80 and 10 per cent off list	
Upset hex. head cap screws, U. S. S. thread, 80, 10, 10 and 5 per cent off list	
Upset hex. cap screws, S. A. E. thread, 80, 10, 10 and 5 per cent off list	
Upset set screws.....	80, 10 and 10 per cent off list
Milled studs.....	75 per cent off list

Semi-Finished Steel, f.o.b. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over.....	\$35.50
Forging billets, ordinary carbon.....	40.50
Forging billets, guaranteed analysis.....	45.50
Sheet bars.....	37.00
Slabs.....	35.50
*Wire rods, common soft, base, No. 5 to ¾-in.	\$45.00 to 48.00
Wire rods, common soft, coarser than ¾-in.	\$5.50 over base
Wire rods, screw stock.....	\$5.00 per ton over base
Wire rods, carbon 0.20 to 0.40.....	3.00 per ton over base
Wire rods, carbon 0.41 to 0.55.....	5.00 per ton over base
Wire rods, carbon 0.56 to 0.75.....	7.50 per ton over base
Wire rods, carbon over 0.75.....	10.00 per ton over base
Wire rods, acid.....	15.00 per ton over base
Skeip, grooved, per lb.....	26. to 2.10c.
Skeip, sheared, per lb.....	26. to 2.10c.
Skeip, universal, per lb.....	26. to 2.10c.

*Chicago mill base is \$50. Cleveland mill base, \$48.

Alloy Steel

(F.o.b. Pittsburgh or mill)

S. A. E.	Series	Bars
Numbers		100 lb.
2100*	(¼% Nickel, 10 to 20 per cent Carbon)...	\$3.00 to \$3.25
2300	(¾% Nickel).....	4.50 to 4.75
2500	(5% Nickel).....	6.00 to 6.25
3100	(Nickel Chromium).....	3.50 to 3.65
3200	(Nickel Chromium).....	5.50
3300	(Nickel Chromium).....	7.50 to 7.75
3400	(Nickel Chromium).....	6.50 to 6.75
5100	(Chromium Steel).....	3.50
5200*	(Chromium Steel).....	7.50 to 8.00
6100	(Chromium Vanadium bars).....	4.25 to 4.50
6100	(Chromium Vanadium spring steel).....	4.00 to 4.25
9250	(Silicon Manganese spring steel).....	3.50
Carbon Vanadium (0.45 to 0.55 Carbon, 0.15 Vanadium).....		4.25 to 4.50
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium).....		4.50
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum).....		4.25
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum).....		3.75
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.20—0.50 Molybdenum).....		4.75 to 5.00

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for coal drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10-in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4-in. down to and including 2½-in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

PERSONAL

Charles W. Beaver has resigned from the Yale & Towne Mfg. Co. after nearly 25 years of service. He went with the company in 1901, since which he became successively manager of the hoist department, export manager, directing manager of the subsidiary companies in Europe, general sales manager of the Yale & Towne Mfg. Co., and vice-president and director of the Yale & Towne Co., London, England. During that time his work embraced activity within the boundaries of 23 foreign countries. Mr. Beaver is a past-president of the Railway Supply Manufacturers' Association and the American Supply & Machinery Manufacturers' Association. He expects to spend about a year in travel and recreation and at the end of that time again to participate in active business. However, no definite plans have been made. His permanent home address is Shippen Point, Stamford, Conn.



CHARLES W. BEAVER

Frank Fenix of Joplin, Mo., has been appointed chief inspector of the State Mining Bureau by Governor Baker of Missouri, succeeding J. E. Roberts. O. L. Henneger of Vandalia was reappointed secretary of the bureau, a position he has held for the last four years.

G. A. Richardson of the Bethlehem Steel Corporation has been giving a series of lectures, illustrated by moving pictures, on the processes of making steel from the ore to the finished product. He spoke in Portland, Ore., on April 20-21 and in Seattle, Wash., on April 23-24. He has also delivered the lecture in other large Pacific Coast cities.

Frank M. Brodhead, formerly secretary-treasurer J. K. Larkin & Co., 253 Broadway, New York, has been elected president and treasurer of the Brodhead-Murphy Co., Elizabeth, N. J., and James B. Murphy, formerly with J. K. Larkin & Co. as salesman, is secretary of the Brodhead-Murphy Co.

C. M. Robertson, whose resignation as vice-president of the Dale Machinery Co., Chicago, was noted in THE IRON AGE of March 26, has become identified with the Orton & Steinbrenner Co., manufacturer of locomotive cranes, Chicago, as sales engineer.

J. V. Emmons of the Cleveland Twist Drill Co., Cleveland, on April 13 addressed a dinner session of the Milwaukee Chapter American Society for Steel Treating, on "The Machinability of Tool Steel."

H. A. Woltke, for the past six years associated with Joseph T. Ryerson & Son, New York, has joined the sales department of J. K. Larkin & Co., New York and Brooklyn.

Francis B. Foley, Lucey Mfg. Corporation, Chattanooga, Tenn.; Zay Jeffries, Aluminum Co. of America, Cleveland; Carl A. Meissner, United States Steel Corporation, New York; Earle C. Smith, Central Steel Co., Massillon, Ohio; Ewart S. Taylerson, American Sheet & Tin Plate Co., Pittsburgh, and C. W. Weesner, Trumbull Steel Co., Warren, Ohio, are among the candidates for membership in the Iron and Steel Institute, whose names appear on the voting list for the annual meeting in London, May 7 and 8.

Robert E. Runyon, formerly Pittsburgh district manager, W. C. Runyon & Co., has become affiliated with E. J. Lavino & Co., Philadelphia, in the refractories department.

Charles D. Little, general manager of sales of the Crane Co., Chicago, has been elected vice-presi-

dent in charge of sales and a member of the board of directors to succeed the late E. W. Raymond. H. W. Seymour, branch manager of the company at Baltimore, has been appointed general manager of sales, vice Mr. Little. Walter Evensen has been elected treasurer and P. T. Kelly continues as vice-president in charge of finance.

Fred C. Hermann has resigned from the sales force of the Dale Machinery Co., Chicago.

J. Wallace Carrel of the Lodge & Shipley Co., Cincinnati, sailed for Europe on April 18. He expects to be away on business for three or four months.

C. P. Blanton, president Belfont Iron Works, Iron-ton, Ohio, and his brother, Robert Blanton of the Iron-ton Mfg. Co., are spending a week's vacation at French Lick Springs, Ind.

J. H. Fitch, Jr., vice-president Newton Steel Co., Youngstown, Ohio, with supervision over sales and purchases, has assumed the duties of general sales manager upon the resignation of John L. Harrison. Howard E. Robinson, who has been district sales manager at Chicago, located at 1053 Peoples Gas Building, has been transferred to Youngstown as assistant general sales manager. R. O. Lakin, who has been Mr. Robinson's assistant at Chicago, has been named district manager of the Chicago office. Mr. Robinson has been in the Newton company's Chicago office two years and was previously connected with the company's Detroit office. These changes have already taken place. Mr. Fitch has been connected with the Newton company from the time of its formation and is thoroughly acquainted with its policies.

John L. Harrison, who has resigned as general sales manager of the Newton Steel Co., Youngstown, Ohio, will become identified with the sales department at Wheeling, W. Va., of the Wheeling Steel Corporation. He was identified five years with the Newton company and served as sales manager during most of that time. Previously he had been associated for 17 years with the Allegheny Steel Co., Pittsburgh, ten years of that time in the sales department. In his new capacity he will be connected with the sheet sales division of the Wheeling corporation.

Kenneth C. Batchelor, who has been in the general hot-rolled sales department, Jones & Laughlin Steel Corporation, Pittsburgh, has been transferred to the Buffalo sales office of the company, which is in charge of Ledlie Laughlin.

C. S. Nugent, superintendent of the open-hearth department, Pittsburgh Steel Co., Monessen, Pa., since 1919, has resigned. His successor has not yet been named.

James H. Hammond, chairman Superior Steel Corporation, Pittsburgh, who has been seriously sick, is reported to be improving, and the doctors now expect his recovery.

A. B. Weaver, sales representative at Chicago with Rogers, Brown & Co., has resigned. Mr. Weaver had been associated with that company for 13 years.

L. J. Belnap, president Rolls-Royce of America, Springfield, Mass., has resigned. H. C. Beaver, treasurer of the company since its organization, has been made vice-president in charge of operations.

M. Peters, who was for several years chief engineer and supervisor of the tube rolling mill department of the Deutsche Maschinenfabrik A-G. (Demag) at Duisburg on the Rhine, Germany, and an expert in this line of machinery, is on his way to Youngstown, Ohio, where he spent two months last fall with the Youngstown Sheet & Tube Co., with which he is retained as consultant on tube mill machinery. The object of his present visit is to work on the proposed seamless tube plant to be built by the Sheet & Tube company.

C. M. Allen, who has had wide experience with motor truck companies, notably the Autocar Co., Ardmore, Pa., has been elected president of the Garford Motor Truck Co., Lima, Ohio. He succeeds E. R. Curtin, whose appointment last year was temporary, owing to other demands made upon him.

George W. Starr, formerly general purchasing agent, United Alloy Steel Corporation, Canton, Ohio,

has become associated with the M. Cohen & Son Co., Cleveland, scrap iron dealers. He will have charge of the Detroit office.

Marshall T. Jones, Montclair, N. J., has been appointed assistant chief of the Iron and Steel Division, Bureau of Foreign and Domestic Commerce. He succeeds M. H. Bletz, who was recently appointed secretary of the Committee on Pan-American Standards, Department of Commerce. Mr. Jones is a graduate engineer of Cornell University and has had wide experience as a sales representative and engineer for American corporations operating in the Far East and Latin America. In 1919 he entered the employ of the United States Steel Products Co. and later was detailed to Calcutta, India, and Shanghai, China, where he worked for two years as an engineer with the American Bridge Co. He returned to the United States in 1924 to accept a position with Henry W. Peabody & Co. at Buenos Aires, Argentina, where he was associated with this firm for eight months as sales representative. During the war Mr. Jones served with the Tank Corps. He entered the export department of the Standard Oil Co. in 1913 and was sent to Hongkong, China, where he served for three years with that corporation as manager of the lubricating oil department for the South China field.

G. S. Trayser, for the past 13 years associated with Joseph T. Ryerson & Son in their Chicago, Detroit and New York offices, has joined the sales department of J. K. Larkin & Co., New York and Brooklyn.

J. P. Case, formerly Chicago district manager of the Brown Hoisting Machinery Co., Cleveland, has been appointed sales manager at Cleveland, succeeding E. C. Pierce, general sales manager, who has resigned to enter another line of business after close to 30 years with the company. J. F. Poland, who has been in the main office at Cleveland, has been appointed Chicago district manager. E. W. Taylor of the Cleveland office has been appointed Pittsburgh representative of the company, succeeding H. C. Torrance, who has retired after about 30 years' connection with the company. R. G. Clapp, purchasing agent and manager of the Elyria Foundry Co., Elyria, Ohio, a subsidiary of the Brown Hoisting Company, has resigned as purchasing agent to devote his entire time to management of the foundry. T. P. Bolton, formerly assistant purchasing agent, succeeding him. Minor changes in consolidation of departments have also been made.

J. W. McQueen was reelected president of the Sloss-Sheffield Steel & Iron Co., Birmingham, Ala., a few days before his death. Hugh Morrow, vice-president, and Russell Hunt, secretary-treasurer, were also reelected. The stockholders added John L. Kaul, a prominent lumber manufacturer of Birmingham; W. H. Kettig, a capitalist of Birmingham, and Bernard M. Baruch, Jr., of New York, to the board of directors, filling places made vacant through death in the last two years.

The Administrative Board of the American Engineering Council will meet at the Engineers' Club, Philadelphia, May 8 and 9, to frame plans for the elimination of waste in the administration of the public works functions of the United States Government, and to unify national reforestation effort. The council has sent to its member organizations a request to aid in the observations of American forest week, which President Coolidge has proclaimed for April 27 to May 3.

The International Railway Fuel Association will hold its seventeenth annual convention at Hotel Sherman, Chicago, May 26 to 29, inclusive. Prominent speakers at the opening sessions will be Col. L. F. Loree, president Delaware & Hudson Railway; J. D. Battle, traffic manager National Coal Association, who will give the viewpoint of the coal industry, and P. E. Bast, fuel engineer Delaware & Hudson, who is president of the International association.

Changes in Westinghouse Personnel

Changes affecting the personnel of the merchandising and power departments and the New York district office managership, have been announced by the Westinghouse Electric & Mfg. Co.

J. S. Tritle is made general manager of the merchandising department and will transfer his headquarters from the Westinghouse Building in New York to Mansfield, Ohio. Mr. Tritle will exercise a general supervision over all activities, manufacturing, engineering and sales of the merchandising department.

C. E. Stephens, formerly manager of the central station division New York office has been appointed manager of the New York sales office in place of A. E. Allen, who resigned to accept a position with the Westinghouse Lamp Co.

A. H. Ganshird, formerly manager of the condenser section power department has been appointed manager of the turbine section, to succeed D. O. Tyles, transferred to the industrial division, Pittsburgh office. P. L. Fetzner succeeds Mr. Ganshird. J. A. Brown has been appointed manager of the generator section to succeed W. Loftin, transferred to the Pittsburgh office, central station division. F. J. Lewis has been made manager of the substation section, to succeed B. H. Lytle, transferred to the Philadelphia office.

Paul M. Tyler Returns to Metals Section of Tariff Commission

WASHINGTON, April 21.—Paul M. Tyler, former chief of the metals section, Tariff Commission, has been reengaged by the commission and will again be associated with that section. It is not stated in what capacity Mr. Tyler will work. Reopening of the pig iron inquiry has led to unconfirmed reports that it will be conducted abroad soon and that the scope of investigation abroad will include a general inquiry as to steel costs. It is understood that, if this is done, Mr. Tyler will be connected with the foreign inquiry.

Large Tractor Companies in California Are Merged

SAN FRANCISCO, April 21.—The Caterpillar Tractor Co. has been organized under the laws of the State of California to acquire all assets, patents and trade marks of the C. L. Best Tractor Co., San Leandro, Cal., and the Holt Mfg. Co., Stockton, Cal. Special meetings of the stockholders of both companies will be held early in May to confirm the transfer of the assets of the individual companies to the new organization.

The new company will own the following plants: San Leandro, Cal., a plant of 10 acres, of which five and a half are under roof, equipped for the manufacture of 2500 tractors annually; Stockton, Cal., a plant of 21 acres, of which 12 acres are under roof equipped for the manufacture of combined harvesting machines and spare parts for tractors; Peoria, Ill., a plant of 40 acres, of which 14 are under roof equipped to manufacture 5000 tractors a year. The combined sales of the two constituent companies for 1924 were about \$17,500,000.

The board of directors and official staff of the Caterpillar Tractor Co. will consist of C. L. Best, chairman of the board; R. C. Force, president; B. C. Heacock, vice-president and secretary; M. M. Baker and P. E. Holt, vice-presidents; O. L. Starr, general factory manager; Allen L. Chickering, Henry H. Fair, John A. McGregor, directors.

The American Tube & Stamping Co., Bridgeport, Conn., at its annual meeting on April 15, re-elected the following officers: F. Kingsbury Curtis, chairman of the board; Ellis M. Johnston, president; William R. Webster, vice-president; Ellis M. Johnston, treasurer; A. Bradhurst Field, Jr., secretary; Earle L. French, assistant treasurer; Charles G. Sanford, assistant treasurer; Frederic G. Taylor, assistant secretary.

OBITUARY

James W. McQueen

JAMES WILLIAM MCQUEEN, president Sloss-Sheffield Steel & Iron Co., and one of the most prominent manufacturers of pig iron in the South, died in New York at the Waldorf-Astoria, April 21, after an illness of six days from influenza. Mr. McQueen had come to attend the annual meeting of the company, and when he arrived at the hotel was found to have a high fever. He grew steadily worse until the end came at 2 o'clock Monday morning.

Mr. McQueen was born at Society Hill, S. C., April 15, 1866. His father was General John McQueen, Congressman before the Civil War successively from North Carolina and South Carolina, and on his mother's side he was a descendant of General Andrew Pickens of Revolutionary fame. In his early youth the family moved to Green County, Ala., and there Mr. McQueen received a common school education. When 15 years of age, he began his business career as a telegraph operator on the Alabama Great Southern Railroad. In 1890 he was promoted to the superintendent's office at Birmingham as train dispatcher, and in 1891 became connected with the Sloss-Sheffield company. His energy, ability and sound judgment soon brought promotion. In 1902 he became vice-president, having served successively as manager of the transportation department, auditor, secretary and treasurer. Waddill Catchings, who was elected president of Sloss-Sheffield in 1917, resigned about a year later to become a member of the firm of Goldman, Sachs & Co., New York, and Mr. McQueen was chosen to the presidency in February, 1918.

An important event in the history of the Sloss-Sheffield company was the acquiring of the physical properties of the Alabama Co., also of Birmingham, in October, 1924. In bringing about this acquisition, Mr. McQueen was an active factor. Previous to the taking over of the Alabama Co. the Sloss-Sheffield company had seven blast furnaces with a capacity of 600,000 tons of pig iron a year and the purchase of the Alabama Co. added two furnaces, making the annual capacity 900,000 tons.

Mr. McQueen was a widower and is survived by two sons, Giles E., who was with him at the time of his death, and James W. McQueen, Jr.

Mr. McQueen's rise was due to his natural ability, coupled with great capacity for work and a painstaking attention to details. His wise handling and marketing of the company's output was a conspicuous factor in its progress. He had had a part in every development of the Southern pig iron market, from the days when most of the Alabama product was sold in the North, often in a profitless competition with Northern furnaces, to a time when the industrial development in the South was sufficient to absorb nearly all the output of Alabama furnaces. Mr. McQueen referred to this significant change in his presidential report for 1923. His paper on "Southern Foundry Pig Iron" was a feature of the meeting of the American Iron and Steel Institute at Birmingham in October, 1914. In one of his characteristic sentences the author observed: "Southern pig iron has always been a friend to every one and no satisfactory substitute for it has ever been found."



JAMES W. MCQUEEN

JOHN MCGRATH, vice-president Eberhard Mfg. Co., Cleveland, died April 16, aged 64 years. He had been connected with the company 40 years and served for a time as manager of the Cincinnati branch. In 1906 he became assistant treasurer, retaining that position until last fall when he was elected vice-president. He was past governor of the Ohio Society of Colonial Wars and a member of the Military Order of the Loyal Legion of America.

PETER J. CONNOR, mechanical engineer, since 1897 associated with the Gisholt Machine Co., Madison, Wis., died on April 12 after a long illness. He was born in Hamilton, Ohio, in 1865, and was a graduate of Cornell University, class of '90. He was widely known in the machine tool industry as a designer and inventor, as well as the author of several technical publications.

H. M. CLARKE, president H. M. Clarke Iron & Wire Works, Seattle, Wash., died from heart failure recently in that city. He was 70 years of age and is survived by his wife and one son.

KLAUS SOLLIE, aged 35, chief engineer of the Youngstown Sheet & Tube Co., located at the East Youngstown works, died April 19, following an operation for peritonitis. He was born in Norway and had been connected with the Sheet & Tube company since 1915.

EDWIN L. WILES, who died some weeks ago, had been a member of the Institute of Mining and Metallurgical Engineering since 1882. He started with the Cambria Steel Works in 1876 and made steel at the Union Steel Co., Chicago; Springfield Iron Co., Springfield, Ill., and Riverside Iron Co., Benwood, W. Va. In 1885, under management of the late Frank J. Hearne of the Riverside company, he started the first Bessemer plant not devoted to rail steel, in this country, producing low-carbon steel for cut nails, displacing wrought iron for the purpose. In 1906, Mr. Wiles went to Denver as assistant to Mr. Hearne, then president of the Colorado Fuel & Iron Co., and remained there until some time after Mr. Hearne's death, returning to his old home at Stony Point, N. Y., in 1908 to help his father in his foundry and machine business.

WILLIAM R. COLKLESSER, purchasing agent for the Lenoir Car Works, Lenoir City, Tenn., subsidiary of the Southern Railway, died at his home, 1515 Park Road, N. W., Washington, on April 19. He was well known in Eastern iron and steel trade circles.

WILLIAM L. EWING, until recently manager of the St. Louis sales warehouse, Wheeling Corrugating Co., died in that city April 13. He was born in Wheeling, but about 25 years ago went to St. Louis for the Wheeling Corrugating Co. and had since made his home there. His brother, E. C. Ewing, is a director and member of the executive committee of the Wheeling Steel Corporation.

CHARLES S. BECKWITH, first vice-president William H. Taylor & Co., dealer in machinery and tools, Allentown, Pa., died on April 19.

The effect of the coal strike at the mines of the British Empire Steel Corp., in Nova Scotia, is shown in the production of coal and steel products of the company for March. During the month the various mines of the company produced only 45,000 tons, despite the fact that the capacity is well over 5,000,000 tons per annum. On the other hand upwards of 35,000 tons of steel ingots was made, a new record for the Sydney, N. S., works.

Directors of the Youngstown Sheet & Tube Co. were scheduled to meet Wednesday of this week at the main offices in Youngstown for consideration of the financial statement for the first quarter. Earnings the first three months are unofficially reported equal, after charges and preferred dividends, to more than twice the current dividend requirements of the common stock.

European Markets Quiet But Firm

Some British Works Closed Down—Syndicates Still
to the Fore on the Continent—German
Taxation Program

(By Cablegram)

LONDON, ENGLAND, April 20.

BUSINESS is still quiet and the outlook is not favorable. Pig iron is tending easier, though there has been no general price alteration, except in hematite, which is weak.

Foreign ore is dull. Bilbao Rubio is held nominally at 22s. to 22s. 6d. (\$5.26 to \$5.38), c.i.f. Tees, but no business is passing.

Finished steel is quiet, especially for domestic trade. There have been some export inquiries, but the volume of business placed has been small. Guest, Keen & Nettlefolds, Ltd., have closed the Cardiff Works. The Briton Ferry Works, Ltd., have closed the Albion Steel Works. [This is a subsidiary of Baldwins, Ltd.] Both these closures were due to the absence of orders.

March exports of pig iron amounted to 39,123 tons, of which 5152 tons went to the United States. The total exports of iron and steel in March were 312,194 tons.

Sheets and Tin Plate

Tin plate is moderately active, both in home and export markets. The recent fall in the price of tin lowered costs and most makers are now sellers at the schedule price of 22s. 1½d. (\$5.29) basis, I.C., f.o.b. Wasters are in chief request, but the Far Eastern demand is less urgent.

Galvanized sheets are fairly active on small orders, but substantial demand is not in evidence. Corrugated sheets of 24 gage in bundles have been sold at £16 12s. 6d. (3.55c. per lb.) f.o.b.

There is increased demand for Japanese specifications on black sheets and business is being done on small lines up to £15 10s. (3.31c. per lb.) f.o.b. for

6 x 3 ft., 13's, 107 lb. Other markets are not interested.

On the Continent of Europe

Continental markets are quiet, but prices generally are firm all around. Semi-finished steel is in great demand, because of short supplies. Domestic consumers are inactive and export buying is dull.

A threatened lockout in the Hainaut district of Belgium was averted when a compromise was reached between employers and men.

GERMAN IRON AND STEEL

Syndicates and Cartels Still Forming—Foreign
Ore Demand Continues

BERLIN, GERMANY, April 3.—The Luther Cabinet has submitted a number of highly contentious bills, the fate of which will materially influence business. One bill reforms and in general reduces taxation: the future minimum and maximum income tax rates are to be 4.9 per cent and 33.3 per cent respectively. The property tax is fixed at a uniform 0.5 per cent, instead of the present progressive rates. The triennial tax on increment of capital is to be revoked.

Federal, State and municipal mark bonds are called in, and for every 1000 marks nominal the holder will receive 50 reichsmarks (new Dawes marks) nominal of a new "loan redemption debt." These bonds will bear no interest until reparations are fully paid, but holders who can prove that they acquired their bonds not later than June 30, 1920, will receive "allowances" equal to 5 per cent a year upon their new holdings of "loan redemption debt," that is, 0.25 per cent per year on their original investments, assuming that they

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.76 per £1, as follows:

Durham coke, del'd..	£1 2s.	\$5.26
Bilbao Rubio ore†...	1 2½	5.38
Cleveland No. 1 fdy...	4 2½	19.72
Cleveland No. 3 fdy...	3 17½	18.52
Cleveland No. 4 fdy...	3 17	18.40
Cleveland No. 4 forge	3 15½	18.04
Cleveland basic...	3 17½	18.52
East Coast mixed...	4 2½	19.72
East Coast hematite...	4 19	to £5 0s. 23.66 to \$23.90
Ferromanganese...	15 0	to 15 10 71.70 to 74.09
*Ferromanganese...	15 0	to 15 10 71.70 to 74.09
Rails, 60 lb. and up...	8 10	to 9 0 40.63 to 43.02
Billets...	7 5	to 8 5 34.65 to 39.44
Sheet and tin plate		
bars, Welsh...	7 17½	37.64
Tin plates, base box...	1 2½	5.29
		C. per Lb.
Ship plates...	8 15	to 9 5 1.87 to 1.97
Boiler plates...	13 0	to 13 10 2.77 to 2.88
Tees...	8 15	to 9 5 1.87 to 1.97
Channels...	8 0	to 8 10 1.71 to 1.81
Beams...	7 15	to 8 5 1.65 to 1.76
Round bars, ¾ to 3 in.	9 0	to 9 10 1.92 to 2.03
Galv. sheets, 24 gage	16 0	to 16 10 3.41 to 3.52
Black sheets, 24 gage	11 10	2.45
Black sheets, Japanese		
specifications...	15 5	3.25
Steel hoops...	10 15	and 12 10* 2.29 and 2.67*
Cold rolled steel strip,		
20 gage...	16 0	3.41

*Export price.

†Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

Foundry pig iron: (a)		
Belgium...	£3 15s.	\$17.93
France...	3 15	17.93
Luxemburg...	3 15	17.93
Basic pig iron: (a)		
Belgium...	3 14	17.69
France...	3 14	17.69
Luxemburg...	3 14	17.69
Billets:		
Belgium...	5 5	25.10
France...	5 5	25.10
Merchant bars:		
Belgium...	5 16	2.24
Luxemburg...	5 16	2.24
France...	5 16	2.24
Joints (beams)		
Belgium...	5 9	to £5 10s. 1.16 to 1.17
Luxemburg...	5 9	to 5 10 1.16 to 1.17
France...	5 9	to 5 10 1.16 to 1.17
Angles:		
Belgium...	5 18½	to 6 0 1.26 to 1.28
¼-in. plates:		
Belgium...	7 2½	1.52
Germany...	7 2½	1.52
½-in. ship plates:		
Luxemburg...	7 2½	1.52
Belgium...	7 2½	1.52

(a) Nominal.

bought their bonds when the mark was of full gold value. This meager compensation to bondholders contrasts with the flourishing state of the finances. In the first 11 months of the current financial year taxes yielded 6710 million marks, against an estimated 5243 millions for the whole 12 months.

Foreign Competition

Competition in the steel, shipbuilding and engineering branches continues acute. Undoubtedly Germany is underselling England. The Rhenish-Westphalian companies, however, insist that in heavy iron and steel France and Belgium are underselling Germany; and declare that these countries deliver bars f.o.b. Rotterdam at 55s. per metric ton, whereas Germany charges 70s. [0.6c. per lb. vs. 0.76c.; these prices appear unduly low.] The Prussian Trade Ministry's report for March complains that German firms are exporting at much below their home prices and at below production cost, a procedure which injures the nation's foreign payment-balance.

Wages rise very slowly. Skilled miners, the best paid of all classes, drew in February an average weekly wage of 43.38 marks; iron and steel skilled employees 35.52 marks, or under \$9. The cost of living index in March was 135.6, based on 100 in 1913-14. The exemption of the steel corporations from further revaluation will considerably reduce production costs.

Foreign trade is still unsatisfactory, February imports having been 1125 million marks against 631½ millions exports. With exception of textiles this passive surplus is not due to inability to compete, but to the absence of commercial treaties with some important countries, to the increased protection in most countries of industries created during the war, and to the continuation of certain special measures against German goods.

Export, however, seems to be recovering. A very large number of foreign orders for metal and engineering products are reported. Many orders are from foreign governments, and it usually is emphasized in the reports that English and other competitors were heavily underbid. Chief foreign orders are for railroad, port and shipping materials, and for electrical articles. Latest reported orders are from Belgium, Holland, Turkey, Brazil, Argentina and Japan. Russia is giving considerable orders, and would be willing to give more if German firms granted credit more liberally. After inspecting German conditions on the spot Commissary Tolokontcheff reported in March to the Moscow Mining and Metallurgical Congress that German production cost is 20 to 30 per cent below English.

Syndicates Still Rampant

The movement toward syndication and cartels both in the heavy and finishing branches continues. The Semi-Finished Materials Syndicate (*Halbzeugverband*), which exists since January, did not carry out the original intention to take over selling on April 1, on behalf of its constituent firms, and the firms will conduct their own selling for at least another quarter year. Reason for the change of plans is the uncertainty concerning Franco-German arrangements in this branch, and the fact that the Raw Steel Syndicate has been prolonged only until the end of 1926. The Semi-Finished combine finds it undesirable to create a costly selling organization as long as these questions are in doubt. Of the proposed subordinate combines the Tubes syndicate began operations on April 1 for a fixed term of seven years, operating as a selling organization. Negotiations over a Wire Rods Syndicate for a term of five years are proceeding. The preparations for the syndicates for bars, sheets, etc., make little headway. The revival of the old *Stahlwerksverband* is under discussion. Were this done the new Semi-Finished combine would be absorbed, and the scope would also include rails, ties, etc.

South German wholesale and retail traders have come to an agreement with aim of preventing selling rolled materials, etc., at too cheap prices, fines to be imposed on offenders. Twelve hundred firms, mostly Bavaria, Württemberg and Baden, are members. Nineteen leading manufacturers of locomotives have formed

a cartel called the *Deutscher Lokomotiv-Verband*, including the Henschel, Schwartzkopff, Hanomag, Borsig, Rhenish-Metal, Union, Wolff, Krupp and Linke-Hofmann companies.

Heavy Demand for Foreign Ores

Toward the end of March the heavy iron and steel market became noticeably firmer. There is a fair demand for pig iron and a great demand for bars, construction forms, wire rods and thin sheets. Many concerns have plenty of work for a long time ahead; and the Dortmund Union, Krupps, Hoesch and Phoenix show a disinclination to sell. Delivery terms for bars are up to three months, for thin sheets six weeks, wire rods four weeks. Export business in all these is dull. The Central German steel works announce through their organization that their production now exceeds the pre-war, being 1,200,000 metric tons.

There is a strong demand for foreign ores of all sorts. Large quantities of Swedish ore are being imported. The Swedish Grangesberg Co. reports having shipped 1,666,000 tons in the first quarter of this year, against 643,000 tons in the same period of 1924. Normally, between 60 and 70 per cent of Swedish shipments come to Germany, but of late the percentage has been higher. Sweden is at present not able to satisfy the German demand for high-grade (over 65 per cent) ore. March witnessed a considerable demand for North French ore and minette; but the supply is so short and prices are so high that the Ruhr smelters now declare themselves not interested in this ore, and say that the demand will decline very much as soon as Wabana ore arrives. Recent purchases of Spanish ore have been small.

No change has taken place in pig iron prices. The engineering industry is fairly prosperous. Against a tendency toward increasing production costs, great efforts are being made to economize by means of standardization and modernization. The supply of skilled workmen in this branch is less than the demand. The electrical branch reports a slight improvement. Trade journals declare that American electrical installation material is often, owing to mass production, cheaper than German, but the *Bergwerks-Zeitung* emphasizes the advantage which Germany has in Continental Europe, owing to the fact that the official regulations mostly follow the German, and forbid the use of specifically American material and installation methods. In particular Denmark and Holland are under German influence in this matter. The Solingen fine steel industry has obtained some Canadian orders by selling at below production cost. In general this branch is doing moderately well.

Some Prices Higher

Prices of tubes were raised by 2 to 3 per cent in the middle of March. Scrap prices per metric ton are: solid scrap 76 to 77 marks (\$18.39 to \$18.63), steel scrap 78 to 79 marks (\$18.88 to \$19.12), turnings 63 marks (\$15.25), cast iron scrap 82 marks (\$19.84), ex-selling station. Semi-finished and rolled steel prices are, also in marks, per metric ton:

		Per Gross Ton
Blooms	112½ or	\$27.22
Billets	120 or	29.04
Slabs	125 or	30.25
Wire rods	145 or	35.09
		Per Lb.
Bars	134 to 136	or 1.45c. to 1.47c.
Construction forms	132	or 1.43c.
Thick sheets (5 mm. or No. 6½ gage and over)	145	or 1.57c.
Medium sheets (3 to 5 mm.)	172	or 1.86c.
Thin sheets (1 to 3 mm. or No. 19½ to No. 11½ gage)	200	or 2.16c.
Thin sheets (under 1 mm.)	215 to 217	or 2.32c. to 2.35c.

Pig iron prices are still materially below those of 1924. At the beginning of 1924 the Pig Iron Syndicate began quoting reduced prices for South German districts in view of their unfavorable position in relation to the Northern smelting concerns. The average price for foundry No. 3 in North Germany in 1924 was 92.65 gold marks (\$22.42 per gross ton), in South Germany 89.65 marks (\$21.70); average price for both areas in 1923, 106.43 marks (\$25.76); 1922, 74.32 marks (\$18); 1921, 83.37 marks (\$20.18); 1920, 124.01 marks (\$30); 1919, 118.46 marks (\$28.67). The big disparities are due largely to fluctuations in the gold exchange of the

paper mark. In general 1921 and 1922 were years of low German prices.

The January iron and steel foreign trade balance was favorable compared with that of a year ago. Imports of iron and steel and wares (excluding machinery) were 260,525 metric tons, against 104,569 tons in January, 1924; exports 304,492 tons, against 118,405 tons. Imports of machinery totaled 2030 tons, against 440 tons a year ago; exports 25,616 tons, against 19,750 tons.

French Exports and Imports of Machinery and Vehicles

WASHINGTON, April 20.—French exports and imports of certain classes of machines and vehicles during 1924 are listed below, with the percentage of increase or decrease relative to 1923, in accordance with figures received by the Department of Commerce from Commercial Attaché Jones, Paris:

	Exports		Imports	
	Metric Tons	Increase	Metric Tons	Increase
Machine tools	8,675	40%	15,222	19%
Agricultural implements	13,653	60	47,514	13
Passenger automobiles	43,094	52	14,249	69
Commercial vehicles	4,193	57	115	35
Rubber tires	21,800	20	.....	..
Rubber footwear	2,585	70	.....	..
Dynamo-electric machinery	4,081	44	2,684	-34
Electrical apparatus	5,446	61	1,519	-1

*Number of vehicles.

Holland's Purchases of Industrial Machinery

Germany is losing her hold in the industrial machinery market of Holland, according to an analysis made by the United States Department of Commerce. German machinery exports to the Netherlands amounted to 13,373 metric tons in 1924, compared with 15,594 tons in 1923, 31,201 tons in 1922 and 22,884 tons in 1913. On the other hand, United States exports of machinery to Holland in 1924, at \$764,179, while \$100,000 below the 1923 figure of \$866,988, were considerably above the 1922 figure of \$691,696. The outstanding feature of the review is the contrast between American gains in the last two years and German losses, in spite of the German proximity to the market and a general similarity in many features of the machinery used in the two European countries.

An Island of Iron

On the northwest coast of Australia a small island with the name Koolan has been discovered which contains large amounts of iron, according to a description in the *Iron and Coal Trades Review*. This island, which is seven miles long and with a maximum breadth of three miles, rises to a height of 670 ft. near its center. The outcrop of hematite iron ore forms the crest of the ridge along the southern part of the island, rising in one place to a height of more than 600 ft. At two points where the outcrop was measured with a tape it showed a thickness of about 100 ft., apparently of solid ore. Experts estimate the quantity of ore above high-water mark at 76,000,000 tons.

Analyses of four samples taken from the island showed ferric oxide at 94, 92, 95 and 97 per cent. There was no trace of sulphur in the ore. Of phosphorus, the respective quantities were 0.14, 0.03, 0.03 and 0.02 per cent. The ore lies in such a way that a very large portion of it could be obtained without expense of removing any overburden.

The Buffalo chapter of the American Society of Mechanical Engineers held its last technical meeting of the year at the Hotel Statler, April 14. M. S. Snyder, the principal speaker of the evening, spoke on "The Economies in Handling Coal and Ashes in the Modern Power Plant."

BRITISH STEEL EXPORTS

March Shows Gain Over February—Imports Also Gained 4 Per Cent

WASHINGTON, April 20.—Exports of iron and steel from Great Britain during March amounted to 312,194 gross tons, a gain of nearly 5 per cent over the preceding month, says a cable from Acting Commercial Attaché Butler, London, to the department of Commerce. The more important advances among the individual articles were: Tin plate, 14,321 tons; railroad material, other than rails, 6624 tons; and structural steel, 1881 tons. Many items showed small losses. The more prominent declines were in wrought tubes, pipes and fittings, 5326 tons; steel bars, rods and angles, 2310; and plates and sheets, 1348 tons.

Foreign consignments of iron and steel totaled 936,306 tons for the first quarter of 1925, the bulk of this being in galvanized sheets, tin plate, and other plates and sheets, pig iron and ferroalloys, and steel bars, rods and angles. Details of this trade and also of importation for the first quarter and for the month of March are presented in the accompanying table:

British Foreign Trade in Iron and Steel in 1925
(In Gross Tons)

	Imports		Exports	
	March	January through March	March	January through March
Pig iron and ferroalloys ..	34,699	88,738	52,675	162,996
Ingots, blooms, billets and slabs	101,215	290,143	862	1,884
Iron bars, rods and angles ..	20,754	74,475	3,253	9,412
Steel bars, rods and angles ..	27,680	74,457	20,571	63,357
Structural steel	10,302	32,929	5,969	14,432
Hoops and strips	3,905	14,345	4,755	12,874
Plates and sheets	15,517	49,563	23,789	82,557
Galvanized sheets .....	.....	.....	65,351	186,604
Tin plate .....	.....	.....	45,298	120,135
Cast tubes, pipes and fittings	3,006	11,481	7,622	22,240
Wrought tubes, pipes and fittings	4,270	11,382	12,255	46,422
Rails	3,762	8,208	12,902	51,740
Other railroad material	2,392	6,269	18,598	44,020
Wire	4,632	15,904	6,795	20,603
Wire cables and rope .....	.....	.....	2,178	5,480
Wire nails, including staples	5,294	16,148	366	1,186
Other wire manufactures ..	558	1,834	2,093	5,601
Nails, tacks, rivets and washers	911	2,437	1,244	4,300
Bolts and nuts, including screws for metals	984	2,844	2,350	8,024
Iron and steel castings	749	2,134	146	473
Iron and steel forgings	701	1,957	77	275

Importation of iron and steel also was heavier in March than in February by about 4 per cent, March covering a period of more days. Receipts aggregated 244,921 tons for the month, bringing the total imports for the first quarter up to 714,618 gross tons. The outstanding gains made in the imports for March as compared with those for the preceding month were in pig iron and ferroalloys, 8666 tons; ingots, blooms, billets and slabs, 2598 tons; steel bars, rods and angles, 6952 tons; and rails, 1752 tons. The larger losses were in iron bars, rods and angles, 2982 tons; structural steel, 4622 tons; hoops and strips, 2083 tons; and plates and sheets, 2187 tons.

Greater Production of Iron and Steel

In March there were 607,900 tons of pig iron and 684,700 tons of steel ingots and castings produced, as compared with 534,100 tons of pig iron and 646,400 tons of steel ingots and castings in February. There were 169 blast furnaces and 284 open-hearth furnaces operating at the end of March, an increase of 5 blast furnaces and 5 open-hearth furnaces over the number active at the end of the preceding month.

Sales of mechanical stokers in March are reported by the Department of Commerce at 131, of a total of 71,099 hp. This is the largest rating since August, 1923, when the total was 71,693 hp. in 135 units. The current figure compares with 135 stokers of 46,298 hp. in February and with 89 stokers of 34,597 hp. in March, 1924. Nearly the entire amount goes under water-tube boilers, which take 114 stokers of 68,653 hp.

"Dirty Steel" Under the Microscope

(Concluded from page 1188)

icates good or poor work requires considerable experience, but a few suggestions may be helpful. Generally in a good photomicrograph of an unetched section intended to illustrate inclusions, the spots shown will not be pure black and structureless, and will not have fuzzy indefinite outlines, and will not be shown embedded in a rough, speckled or streaky surface. Photomicrographs exhibiting such features should be regarded with suspicion, unless they show etched sections intended primarily to represent the microstructure of the metal. It must be remembered in this connection, however, that published reproductions of photomicrographs often do not do justice to the originals, so that in spite of good polishing the printed cut may show certain inclusions as rather rough black spots.

It is hoped that the illustrations accompanying this paper will call attention to the importance of careful and efficient preparation of specimens in the detection or study of dirty steel, and will make it less easy in the future for pits, rust, scratches and other surface defects to pass as dirt in the metal.

Bauxite Produced in the United States in 1924

Production of bauxite in the United States is reported by the Geological Survey to have aggregated 346,553 gross tons in 1924, with a value of \$2,131,908. The production was less than two-thirds that of 1923, with 522,690 tons. Imports in 1924 aggregated 201,974 tons and exports 77,065 tons, largely bauxite concentrates. This made an available amount represented by 471,462 tons, a drop of nearly 100,000 tons from the 1923 available amount, which was 563,150 tons. Industries absorbed the domestic production in the two years as follows:

	1924	1923
Aluminum	225,774	380,520
Chemicals	53,859	68,870
Abrasives, refractories and cement	66,920	73,300

The Arkansas field, with 326,616 tons, accounted for all but 6 per cent of the domestic production in 1924. Production of that field in 1923 was 493,880 tons, again all but about 6 per cent of the total. Most of the bauxite imported in 1924 came from the three Guianas in South America; small amounts came also from France and Dalmatia.

Shipbuilding Decline Continues

Orders for new ships throughout the world are almost down to the lowest post-war mark, reached in the third quarter of 1923, according to Lloyd's Register of Shipping. Orders now aggregate 2,396,000 gross tons, compared with 2,470,000 tons at the close of 1924, 2,516,000 tons a year ago, and 2,377,000 tons on Sept. 30, 1923. The principal maritime countries in point of orders at the close of the first quarters of 1924 and 1925 appear in the table.

Vessels Building in Principal Maritime Countries at End of First Quarter, 1924 and 1925. (In Gross Register Tons)

Countries	1924	1925
Great Britain and Ireland....	1,473,629	1,165,368
Germany and Danzig.....	299,021	420,860
France	111,610	187,437
Italy	130,743	164,023
Netherlands	106,505	119,908
United States	119,767	81,728
Japan	72,655	51,755
British Dominions	27,790	28,378

Denmark, which was not given in the 1924 returns, now has 83,794 gross tons of shipping contracted for and therefore ranks higher than the United States, Japan, or the British Dominions.

Hon. John Barrett, former director general of the Pan-American Union, will be the principal speaker at the New England Foreign Trade Conference to be held at Providence, April 29 and 30. Dr. Julius Klein, director of the Bureau of Foreign and Domestic Commerce, will deliver an address on "The Gravest Menace to Our Exports."

ELECTRIC DRIVE IN BRITAIN

New Installations Going In for Rail and Plate Mills—Outlook for Iron and Steel

It is expected that the returns on the census of production in Great Britain, schedules for which are being distributed, will throw much light on the condition of the iron and steel industry. In particular, the returns probably will disclose a striking growth in the use of electric drives in iron and steel mills. The past year, for example, saw the setting to work of the electrically-driven reversing, roughing and finishing stands of the rail mill at Dowlais. This drive, which is erected at the finishing end of the mill, has taken the place of two engines which previously drove the two stands independently. The reversing motor is designed for cut-out torque of 100 meter-tons at any speed between 0 and 60 r.p.m., with a further speed range up to 120 r.p.m., while the flywheel set is driven by a 3000-hp. a.c. motor coupled to a 30-ton flywheel and two variable voltage generators.

New reversing plate mill drives at Consett, now being erected, will be at work soon. The plant consists of two large reversing mill drives for the slabbing and large plate mill and continuous running motor for a three-high light plate mill. Over 50,000 hp. of electric plant is being supplied in connection with the equipment of these mills.

Considerable activity has been displayed in sheet mill drives, following on the large demand for this class of material. Two interesting drives which shortly will be installed cover the supply of synchronous/asynchronous machines for cold rolling plant, representing the first application of this type of motor to rolling mill drives in Great Britain. The reason for the adoption of this class of motor lies in the advantage of obtaining power factor improvements, which is now usually asked for by the power companies. Another method to this end is the adoption of an oscillating phase advancer in conjunction with a motor driving a Pilger mill, which has given highly satisfactory results.

Whatever else the census returns may show, they will probably enable us to ascertain more clearly than is at present possible the nature and cause of movements such as the set-back which appears to have taken place in the iron and steel industry of Great Britain in the last quarter of 1924, and which is feared by some to be the beginning of renewed depression. All through 1922 production increased, until a maximum was reached in the second quarter of 1923; in the third quarter there was a somewhat sharp decline, but then recovery followed, until in March and April, 1924, production was only slightly less than the maximum reached in the previous year. Since then there has been a considerable decrease. This has been more marked in steel than in pig iron, but, on the other hand, steel production has increased somewhat in the last quarter of the year, whereas that of pig iron has remained steady.

Taking the year 1924 as a whole, the output of pig iron may be put at approximately 7,350,000 tons; in 1923 it was 7,438,500 tons. The output of steel in Great Britain in 1924 will also be slightly under that in 1923. The tonnage of iron and steel imports will probably amount to between 80 and 90 per cent more than in 1923. On the other hand, iron and steel exports will be at least 10 per cent less than in 1923. Considering the very great increase in British potential capacity for steel making, there appears to be some ground for the view that the industry in this country is barely holding its own. But the iron and steel industry is in many ways exceptional and, when fuller data concerning it are available, it may be viewed in a more accurate light.

The Lukens Steel Co., Coatesville, Pa., one of the pioneers in the manufacture of plates in this country, has published a four-page leaflet reproducing an order for plates received in 1825 by Dr. Charles Lukens, then head of the company.

War Controversy Taken to Court

(Concluded from page 1191)

There was no concealment of his relationships at any time. They were urged by himself in the preliminary discussions as constituting a possible disqualification. We brushed this consideration aside. The country

needed Schwab and we reposed a trust in him which was always merited and has been completely vindicated.

"Matters of this kind require no suit, with its formal and necessarily unpleasant allegations. There has been the most complete willingness at all times to exhibit the data and records in the matter, and whatever course the case may take, eventually it can only reach a result by the processes of competent analysis and a candid comparison and judgment of facts."

No Basis in Truth for Government Charges, Says President Grace

PRESIDENT GRACE of the Bethlehem Steel Corporation made the following statement analyzing the two court actions:

"Ever since the completion of the ships which made up its part of the Government's war shipbuilding program Bethlehem has been trying to get the Government Fleet Corporation to pay the balance due Bethlehem on account of the construction of these ships. After exhaustive negotiations the Government finally referred the claim to the Hon. William Marshall Bullitt, formerly Solicitor General of the United States who, after a full investigation, awarded Bethlehem \$5,500,000. The Shipping Board repudiated this award.

"Bethlehem is advised by its counsel that the Government suit is without merits and that Bethlehem will sustain its claim, of which, as stated, \$5,500,000 has already been awarded by Mr. Bullitt.

"The Government's suit against Bethlehem is based upon the charge that contracts between Bethlehem and the Fleet Corporation are invalid, although they were in form the same as was made with other corporations by the Fleet Corporation and the Navy and War Departments during the war, when the fluctuations in the costs of materials and labor became so great that contractors could not safely accept contracts on a lump sum basis and after the Government had become dissatisfied with both the cost plus and the fixed fee forms of contract.

Terms of Bethlehem's Contracts

"Bethlehem's contracts were what is known as the fixed fee plus a percentage of savings contracts. Such a contract provides that the contractor shall receive the actual cost of the ships to be built thereunder plus a moderate fixed fee plus a percentage of any savings effected in the actual cost of the ships below the estimated costs thereof specified in the contract. Bethlehem, although favoring this form of contract, did not insist on it, but offered to accept contracts on any basis other than a lump sum basis that might be prescribed by the general manager of the Fleet Corporation. The Fleet Corporation adopted the cost plus fixed fee plus a percentage of savings contract, however, because it offered an incentive to the contractor to keep down the cost of the ships.

"Bethlehem was very successful in keeping down costs, and on its entire program of eighty-six vessels built under that form of contract it effected savings below the estimated costs aggregating about \$30,000,000, of which about \$16,000,000 inured to the benefit of the Government and \$14,000,000 increased Bethlehem's profits.

"In so far as has been ascertained:

"(a) No other shipbuilder was successful in effecting substantial savings below estimated costs.

"(b) No other shipbuilder built ships of like designs so cheaply as those that were built by Bethlehem.

Shipping Board Criticised

"Other shipbuilders were settled with in full, but the Shipping Board now seeks to penalize Bethlehem's success not only by refusing to allow the Fleet Corporation to pay Bethlehem the balance of the contract price, but by suing to force Bethlehem to repay moneys already paid pursuant to the terms of the contracts.

"Bethlehem has been advised that its contracts are

valid and that it will not only defeat the Government's claim, but will sustain its claim for the balance remaining unpaid.

"It is charged in the Government's suit that Mr. Schwab misused his powers as director general of the Fleet Corporation, which office he held from April 11, 1918, to Dec. 12, 1918. It is not charged that he took any affirmative action in favor of Bethlehem. The charge seems to be that he should have taken some affirmative action against Bethlehem.

"The facts are:

"(a) Mr. Schwab, very much against his will and at the urgent solicitation of the President of the United States and the Shipping Board, accepted the office of director general of the Fleet Corporation at a time of a serious national crisis.

"(b) Mr. Schwab became director general of the Fleet Corporation upon the express understanding, reduced to writing, that he would have nothing whatever to do with the relations between the Emergency Fleet Corporation and the Bethlehem interests.

"(c) Mr. Schwab faithfully carried out this arrangement.

"All this is recognized by Edward N. Hurley, who was chairman of the Shipping Board; Bainbridge Colby, a member of the board who was active in persuading Mr. Schwab to accept the post of director general, and Charles Piez, who was the general manager before, during and after Mr. Schwab's incumbency as director general.

"Under these circumstances there can be no basis of fairness or truth in the charge now made, six years after the event, against Mr. Schwab, who at great personal sacrifice rendered an important public service during an acute national crisis."

Mr. Thompson Would Not Consider Patriotic Service

Frederick I. Thompson, a member of the Shipping Board, takes issue with Charles M. Schwab's defense against the Government's suit to recover \$15,000,000 from the Bethlehem companies. Mr. Thompson believes that it would not have been improper for Mr. Schwab, as head of the Fleet Corporation, to interfere with the profits of the Bethlehem companies. He also protested against the injection of Mr. Schwab's war record into the legal controversy.

Mr. Thompson's statement in part follows:

"I cannot agree in the asserted position of Mr. Schwab that he could not with propriety have concerned himself with the contracts of his own company while serving as Director General of the Fleet Corporation. They were the first contracts he should have assured himself were within the earning limitation of the profit he set.

"The service of Mr. Schwab to the Government in wartime is not of issue. That service is clearly recognized. But it was patriotic, not compensatory. It would appear unfortunate and as unfair to Mr. Schwab to confuse the two issues. It would also be unfortunate if those charged with the responsibility of protection of the Government's interests in connection with wartime shipbuilding contracts be subject in such circumstances to criticism for doing what obviously was a duty."

Machinery Markets and News of the Works

WESTINGHOUSE LIST

Pittsburgh Company Issues Inquiry for About 30 Machines

General Run of Business Only Fair—Some Railroad Buying Expected at Chicago and St. Louis

The largest fresh inquiry for machine tools is from the Westinghouse Electric & Mfg. Co., East Pittsburgh, calling for bids on about 30 items, most of which involve expenditures of less than \$1,000 each.

In all districts buying of tools seems to have receded slightly and inquiries are less numerous. The situation is peculiar in that many companies are working at a fairly good rate, but have sufficient shop equipment to take care of needs and actual requirements are few and far between.

Railroad business is more active than industrial buying, but many railroads are delaying action on inquiries which have been put out since the first of the year. The Mobile & Ohio, at St. Louis, is asking for prices on several machines and the Baltimore & Ohio has issued a small list. Orders are expected at Chicago soon from the Illinois Central and Union Pacific, and the Santa Fe also has more tools to buy.

New York

NEW YORK, April 21.

MACHINE tool buying continues in the same moderate volume that has characterized the market for the past few months. If there is any change in the situation it is that inquiries are less numerous, but the number of orders remains about the same as in recent weeks. There have been no conspicuous sales, but the Central Railroad of Georgia is reported to be placing orders against its recent list. The Cleveland, Cincinnati, Chicago & St. Louis Railroad has bought an engine lathe, 27 in. x 16 ft., from an Eastern company. The Whitehead & Kales Iron Works, Detroit, has bought a 44-in. side head boring mill.

The De La Vergne Machine Co., 910 East 138th Street, New York, has recently taken a number of orders for Diesel oil engines. The most important order was one for 12 200 hp. twin horizontal type engines from the Andean National Corporation, Ltd., for its pipe lines in Colombia, South America. This order was obtained in competition with eight European builders of oil engines. Other buyers are: Magnolia Petroleum Co., Houston, Tex.; Thompson Ice Co., Key West Fla.; El Reno Ice Co., El Reno, Okla.; municipal plant, Wetumka, Okla., and Central Commercial Co., Cuba.

Frank M. Brodhead and James B. Murphy, both recently resigned from J. K. Larkin & Co., 253 Broadway, New York, have organized the Brodhead-Murphy Co. to operate a warehouse business handling mill supplies in Elizabeth, N. J. A three-story brick building has been leased at 231 Broad Street.

The De Laval Engineering Corporation, 110 West Thirty-fourth Street, New York, recently incorporated, is engaged in designing and constructing power plants and performing any work which pertains to the equipment of buildings. It specializes in the conversion of high-pressure plants to low-pressure, using electrified equipment. H. S. Campbell is one of the officials.

Plans have been filed by the Department of Plants and Structures, Municipal Building, New York, for a two-story

addition to its steam power plant at 731 East Sixteenth Street, to cost \$125,000 including equipment. A new oil-burning system will also be installed in the municipal building, Centre Street, to cost approximately \$26,700.

The Dualite Electric Lamp Corporation, 1170 Broadway, New York, recently formed with a capital of \$300,000, will operate a plant at St. Marys, Pa., for the manufacture of a new type of electric lamp. Otto B. Shuloff, chairman of Port of New York Authority, is president, and James W. Gerard, former ambassador to Germany, vice-president James J. Sheridan is secretary.

Gleason Brothers, 13 Oak Avenue, Mount Vernon, N. Y., will take bids for a one-story automobile service, repair and garage building, 150 x 155 ft., to cost about \$75,000 with equipment. C. J. Wolf, 2 Crary Avenue, is architect.

The Etched Products Corporation, 90 Tenth Street, Long Island City, manufacturer of name plates, etc., will build a three-story and basement addition. Haven & Hopkins, 11 Beacon Street, Boston, are architects.

The J. Rosenberg Cooperage Co., 144 Lewis Street, New York, has acquired property, 50 x 200 ft., on Morgan Avenue, near Calhoun Street, Brooklyn, as a site for a new plant.

Louis A. Sheinart, 194 Bowery, New York, architect, has completed plans for a four-story automobile service, repair and garage building, 75 x 100 ft., at 560-64 West 174th Street, to cost \$150,000 with equipment. The same architect has also filed plans for a similar two-story structure, 80 x 93 ft., at 406-12 East Twentieth Street, to cost about \$45,000.

The West Virginia Pulp & Paper Co., 200 Fifth Avenue, New York, is said to be planning the installation of electric hoists and other equipment at its mills at Tyrone, Pa., and in West Virginia.

The Westchester Lighting Co., Mount Vernon, N. Y., has plans for the construction of an automatic power substation at Tarrytown, N. Y., to cost \$70,000 with equipment.

The Department of Water Supply, Gas and Electricity, Municipal Building, New York, has plans under way for extensions and improvements in its pumping plant, known as the Milburn Station, Baldwin, N. Y., to cost \$165,000 with equipment.

John J. Carroll, 225 Greene Avenue, Brooklyn, architect, has plans for a two-story automobile service, repair and garage building, 130 x 240 ft., to cost approximately \$150,000 with equipment.

Wheels, Inc., New York, has been organized to represent the Wire Wheel Corporation of America, Buffalo, and the Motor Wheel Products Co., affiliated, in the New York territory. The new company will operate a service and repair works at 835 Eleventh Avenue, formerly used as a factory branch by the Wire Wheel company. The Steel Wheel Co., 507 West Fifty-sixth Street, will be taken over by the new organization, and the equipment removed to the Eleventh Avenue plant. Thomas J. Wetzel is president.

The New York Edison Co., Irving Place and Fifteenth Street, New York, will install a service, repair and garage department for company trucks and cars in connection with a two-story operating building, 67 x 183 ft., at 323-41 Rider Avenue, estimated to cost \$100,000.

The Department of Public Markets, Municipal Building, New York, E. J. O'Malley, commissioner, will erect a power house and refrigerating plant at Exterior and East 151st Streets, to cost about \$90,000.

The Florence Pipe Foundry & Machine Co., Florence, N. J., has plans for a one-story foundry, for which bids will be taken at once. Charles D. Green is company architect. C. L. Reeves is superintendent.

The Overhead Door Co., Twenty-first Street, Irvington, N. J., Alfred Burke in charge, has awarded a general contract to A. A. Campbell, 798 De Graw Avenue, for a one-story building at 9-13 Dey Street, to cost \$35,000 with equipment.

The Gas Division, Public Service Electric Gas Co., Terminal Building, Newark, has arranged a fund of \$4,000,000 for extensions and improvements in plants and system, exclusive of the new gas generating works in course of construction at Harrison, N. J.

The Crane Market

INQUIRY for electric overhead and locomotive cranes is light, but the volume of pending business is fairly satisfactory. The list of the New York Central Railroad for locomotive cranes is the outstanding inquiry thus far this year, calling for four 25-ton and two 20-ton locomotive cranes, four standard ditchers and two derrick cars. The railroads are becoming more active in the locomotive crane field. A recent inquiry in the New York district is from the Long Island Railroad for a 15-ton locomotive crane. C. W. Carpenter, 434 Wyoming Avenue, Scranton, Pa., has asked for quotations on a locomotive crane of about 25 tons capacity, to handle a $1\frac{1}{2}$ -cu. yd. clamshell bucket, self-propelled and to be shipped to the Chazy Marble Lime Co., Chazy, N. Y. The General Electric Co., which has inquiries out for 10-ton cranes for West Philadelphia, Cleveland and Schenectady plants is reported about to close on the crane for Schenectady. The Lynn, Mass., works of the company is understood to be securing estimates on installation of a 5-ton and 10-ton crane.

In the Chicago district, the Mount Vernon Car Mfg. Co., Mount Vernon, Ill., is expected to close shortly on three 1-ton pitting trolleys, one 3-ton and two 10-ton overhead cranes. The Bureau of Reclamation, Department of the Interior, Denver, Colo., will take bids until May 11, on one 30-ton, 30-ft. 8-in. span electric crane for Yuma siphon drop power plant.

Among recent purchasers are:

Southern Pacific Co., New York, a 25-ton locomotive crane from the American Hoist & Derrick Co.

New York, New Haven & Hartford Railroad, New Haven, Conn., two standard ditchers from the American Hoist & Derrick Co.

Union Pacific System, a standard locomotive crane from the American Hoist & Derrick Co.

Duluth, Mesabi & Northern Railroad, one standard ditcher from the American Hoist & Derrick Co.

Chino Copper Co., 25 Broad Street, New York, a 40-ton, 27-ft. span, 4-motor overhead crane for Hurley, N. M., from an unnamed builder.

Graham Brothers, Evansville, Ind., a 10-ton, 48-ft. span, hand power crane from Alfred Box & Co.

Richmond Radiator Co., Norwich, Conn., three 2-ton, 26-ft. 5-in. span, 2-motor, cranes and one 1-ton, 14-ft. 6-in. span, 1-motor crane from Alfred Box & Co.

Cattle Brothers Corporation, Philadelphia, two 5-ton, 55-ft. span, 3-motor, overhead cranes from Alfred Box & Co.

Philadelphia Rapid Transit Co., Philadelphia, three 3-ton, 26-ft. span, 3-motor, and one 1-ton, 16-ft. span, 1-motor cranes from Alfred Box & Co.

Staten Island Edison Corporation, St. George, Staten Island, New York, two 2-ton, one 3-ton and one 8-ton chain blocks and one 8-ton geared trolley from the Reading Chain & Block Corporation.

Hedden Iron Construction Co., Lyons Farms, N. J., a 15-ton, 50-ft. span, 3-motor overhead crane from the Shepard Electric Crane & Hoist Co.

Timken Roller Bearing Co., Canton, Ohio, a 20-ton, 60-ft. boom, used Brownhoist locomotive crane from Philip T. King, New York.

Inland Steel Co., Chicago, a 15-ton electric traveling crane from the Alliance Machine Co.

Santa Fe Lines, a 30-ton, 50-ft. span gantry crane for Fresno, Cal., from the Milwaukee Electric Crane & Mfg. Co. Consolidated Gas Co., New York, three 250-ton coal and coke handling bridges, fully equipped, for Hunt's Point, New York, from Brown Hoisting Machinery Co.

Gibbs & Hill, engineers, New York, a 30-ton, 66-ft. span special and a 15-ton, 35-ft. $5\frac{1}{2}$ -in. span standard overhead crane for the Virginian Railway from the Chesapeake Iron Works.

The Board of Education, Caldwell, N. J., plans the installation of manual training equipment in its new three-story high school estimated to cost \$250,000, for which a general contract has been let to Bowe & Millmet, 388 Bergenline Avenue, Union Hill, N. J. Starrett & Van Vleck, 8 West Fortieth Street, New York, are architects.

The Lehigh Portland Cement Co., Allentown, Pa., has acquired the plant of the Hudson Valley Cement Corporation, Alsen, N. Y., idle for some time. The new owner will take immediate possession, and will remodel for a branch mill. Tentative plans are also under advisement for the construction of a new mill in this district, reported to cost more than \$600,000.

Theodore Weldans, Inc., 56-58 Genevieve Avenue, Hawthorne, N. J., incorporated with \$10,000 capital stock, will manufacture reed and harness machinery. It is in the market for gray iron castings, cold-rolled steel and similar products.

New England

Boston, April 20.

AFURTHER contraction in new prospects is noted. Dealers have sizable lists of so-called live prospects, but it is practically impossible to secure contracts. A new type 14-in. lathe and a used No. 3B Milwaukee milling machine constitute the most important sales the past week. Manufacturing plants which have inquiries out for tools apparently are no nearer the buying point than a month ago. The textile machinery industry, one of the mainstays of the machine tool market in former years, is quiet and not interested in new equipment.

Houghton Mifflin & Co., 2 Park Street, Boston, publishers, have awarded contract for a one-story, 60 x 150 ft. printing plant addition for which conveying equipment is required. The Monks & Johnson Co., 99 Chauncey Street, Boston, is the engineer.

E. J. MacDonald, 77 Summer Street, Boston, is the architect for a two-story, 70 x 135 ft. garage and service station to be erected at Newtonville, Mass., by the Newton Motor Sales Co., Newton, contract for which has just been let.

The Scovill Mfg. Co., Waterbury, Conn., has acquired the plant and business of the Morency Van Buren Mfg. Co., Sturgis, Mich., tank fittings and valves, and will make additions and improvements.

Bids closed last Friday for a two-story and basement,

63 x 265 ft. boys' trade school to be built in the Roxbury district. McLaughlin & Burr, 85 Tremont Street, Boston, are the architects.

The Strathmore Paper Co., Woronoco, Mass., is revising plans for a four-story, 200 x 43 ft. warehouse addition for which conveying equipment is needed. Lyman Howes, care of the company, is the engineer.

The Warren Belting Co., 33 Arctic Street, Worcester, Mass., has awarded a contract for the erection of a two-story plant. Cutting, Carleton & Cutting, 44 Front Street, that city, are the architects.

Plans will be ready in about a fortnight for a machine shop to be erected by the city of Boston in the Charlestown district to cost, without equipment, \$25,000. George B. McLaughlin, 80 Boylston Street, Boston, is the architect.

The Boston Elevated Railway Co., Park Square, Boston, is having plans drawn for a one-story car repair shop, 113 x 120 ft., to cost approximately \$110,000 with equipment.

The Connecticut Light & Power Co., Waterbury, Conn., is planning the construction of an addition to its steam-operated electric generating plant at Devon, Conn., to increase the present capacity about 50 per cent.

J. A. Quirk, 10 Tremont Street, Boston, architect, has plans for a one-story and basement automobile service, repair and garage building, 60 x 100 ft., at Main Street and Commonwealth Avenue, Somerville, Mass., to cost \$45,000.

The Bristol Co., Waterbury, Conn., manufacturer of pyrometers and other precision instruments, has awarded a general contract to the Immick Co., State Street, Meriden, Conn., for a one-story addition, 118 x 120 ft., estimated to cost \$75,000.

The American Bobbin Co., Lewiston, Me., has been incorporated with \$100,000 capital stock to manufacture bobbins, spools, shuttles, etc., used by the textile trade. It has a plant and the necessary equipment. Orders on the books will keep the company busy most of the year. B. W. Flaherty is secretary-treasurer.

A statement by the Garland Mfg. Co., Pittsburgh, shows current assets of \$316,217, against current liabilities of \$405,916, as of Dec. 31, 1924. Surplus stood at \$324,595. To correct an erroneous impression, it is noted that the company has no mortgage nor bonded indebtedness.

Industrial tracts and equipment of the Kingsport Color Corporation, Kingsport, Tenn., will be sold at auction at the premises on April 21-22. Included in the sale are 450 items of industrial, chemical and mechanical equipment. Samuel T. Freeman & Co., Philadelphia, is auctioneer.

Buffalo

BUFFALO, April 20.

THE Hewitt Rubber Co., 240 Kensington Avenue, Buffalo, manufacturer of mechanical rubber goods, tires, etc., has been acquired by new interests headed by J. H. Kelly and F. V. Springer, both actively engaged in the management of the company for a number of years. The company is capitalized at \$2,000,000 and will be expanded by the new owners, including manufacture of a new type of tire for automobile buses. Mr. Kelly will be president of the new organization and John F. Palmer will continue as consulting engineer.

The Sterling Furniture Co., 16 Nelson Avenue, Salamanca, N. Y., has awarded a general contract to Bentz & Brick, 190 Main Street, for a four-story addition, 80 x 80 ft., to cost approximately \$90,000. A. W. E. Schoenberg, First National Bank Building, Olean, N. Y., is architect. W. O. Frederickson is head.

L. K. Weeks, 74 Jewett Avenue, Buffalo, is planning for the installation of equipment in a local building to manufacture metal goods.

The International Railway Co., 70 West Huron Street, Buffalo, has filed plans for a one-story forge and blacksmith shop and storage building at Hertel Avenue and the Military Road.

The A. C. Gibson Co., North Division and Washington Streets, Buffalo, manufacturer of steel stamps, stencils, etc., has begun the erection of a two-story factory at 70 Oak Street and when completed will remove to the new location.

The Shur-On Standard Optical Co., Rochester, N. Y., has been organized to take over and consolidate the Shur-On Optical Co. with local plant; Standard Optical Co., Geneva, N. Y., manufacturer of precision machinery for optical shops, etc.; General Optical Co., Mount Vernon, N. Y., and its subsidiary, the Kryptok Sales Co. and the Du Paul-Young Optical Corporation, Southbridge, Mass. The merged company plans expansion and will manufacture all products required for optical service. It is said that John W. Collins, heretofore head of the Kryptok organization, will be chairman of the board of the new company. Beverly Chew, previously president of the Standard Optical Co., will be prominent in the new concern.

The Telescope Cot Bed Co., Granville, N. Y., is in the market for about 1500 ft. of 2-in. pipe for a temporary water line.

George C. Bartram, Inc., 847 Ellicott Square Building, Buffalo, has been organized to manufacture pre-cast reinforced concrete pipe and reinforced and other concrete products. George C. Bartram is president.

J. A. Webb Belting Co., 638 Bramson Building, Buffalo, is in the market for quantities of old leather belt, 2½ in. or wider, 3 ft. or longer.

The Stephenson Protectahood Corporation, Auburn, N. Y., has been organized to manufacture hood protectors for automobiles. Facilities are ample for present needs. L. B. Sawyer is president.

The Hermann & Jacobs Co., 55 Allen Street, Rochester, N. Y., manufacturer of machine tools, is looking for reliable agents to handle its line throughout the country.

Pittsburgh

PITTSBURGH, April 20.

THE Westinghouse Electric & Mfg. Co. has issued a list of 30 tools, but it is stated that only 9 or 10 of the items involves the expenditure of more than \$1,000. The Koppers Co. is inquiring for about six tools in connection with coke plant installations in Detroit and Chicago. There are a fair number of single tool purchases, but in a general way the local machine tool market is very quiet, particularly so far as action is concerned on some of the large lists which have been out for some time. Business generally in this district is quiet.

The Pittsburgh Piping & Equipment Co., Charlotte and Thirty-fifth Streets, Pittsburgh, has filed plans for three one-story additions, 120 x 300 ft., 80 x 150 ft., and 50 x 200 ft., estimated to cost \$125,000 with equipment.

Watts Brothers, Turtle Creek, Pa., manufacturers of special metal drills, etc., are enlarging their plant and will install additional equipment. Charles J. Watts is manager.

Fire, April 17, destroyed a portion of the plant of the Royal Window Glass Co., Grafton, W. Va., with loss estimated at \$350,000 including machinery. Plans for rebuilding are under consideration.

The expansion at the plant of the Seward Wire Co., Camden Avenue, Parkersburg, W. Va., for which a contract recently was let to the Plate Construction Co., Parkersburg, will consist of a one-story factory, 30 x 130 ft., and a two-story structure, 30 x 90 ft. Considerable machinery will be installed for the production of rubber-covered wire. The expansion will cost approximately \$30,000. J. O. Seward is president.

The Motor Engineers Co., 2183 University Avenue, Morgantown, W. Va., has work under way on a two-story automobile service, repair and garage building, 55 x 125 ft., to cost \$45,000. Jacobs & White, Morgantown, are architects. Bennett S. White is secretary.

Frank O'Day, Oil City, Pa., and associates are completing arrangements for the purchase of the plant and business of the Oil City Boiler Works, specializing in the manufacture of heating boilers for large buildings. The new owners will continue the operation of the plant and contemplate expansion.

The Dunbar Flint Glass Co., Dunbar, W. Va., has acquired the local plant of the Pennsylvania Glass Co., and will make extensions and improvements to double, approximately, the present output. Additional equipment will be installed.

South Atlantic States

BALTIMORE, April 20.

PLANs are being completed for an addition to the factory of the William F. Zeller Co., Inc., 613 West Cross Street, Baltimore, manufacturer of sheet metal products, to cost in excess of \$45,000 with equipment.

The Bethlehem Shipbuilding Corporation, Wilmington, Del., plans the installation of additional equipment at its Harlan shipyard, including motor-driven air hammers, air compressors and other equipment, designed to carry out later the complete electrification of the yard.

The Halifax Power Co., South Boston, Vt., has acquired the municipal light and power plant at Lawrenceville, Va., and contemplates extensions, including transmission line construction.

The Thomasville Furniture Co., Thomasville, N. C., has plans under way for enlargements to double, approximately, the present capacity. A new power house will be installed. The work is estimated to cost \$65,000. R. L. Lambeth is one of the heads of the company.

The Hunter Machinery Co., Marion, N. C., has inquiries out for a hoisting engine, double-drum, complete with boiler and accessory equipment.

The City Council, High Point, N. C., has extended the time from April 28 to May 7 for bids for equipment for the municipal waterworks, including four motor-driven and two gasoline engine-driven centrifugal pumping units and accessories. William C. Olsen, Raleigh, N. C., is consulting engineer.

The Southern States Iron & Roofing Co., 643 Victory Drive, Savannah, Ga., has preliminary plans for a new factory branch and distributing works at Raleigh, N. C. H. Fullenwider is secretary.

The Hackley Morrison Co., 708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for a single drum electric-operated hoist, 2600 lb., rope pull, 60 cycles, 220 volts.

The Etiwan Fertilizer Co., Charleston, S. C., will rebuild the portion of its plant recently destroyed by fire with loss of \$75,000. Additional equipment will be installed.

The Common Council, Burnsville, N. C., is planning the installation of pumping machinery in connection with improvements in the municipal waterworks, for which a bond issue of \$100,000 has been approved. Warren H. Booker, Charlotte, N. C., is consulting engineer.

The Virginia Railway & Power Co., Norfolk, Va., is arranging a fund of about \$2,000,000 for extensions, including the construction of three automatic substations, hydro-electric generating station and transmission lines.

The J. C. Spach Wagon Works, Winston-Salem, N. C., has been organized with \$250,000 capital to manufacture wagons, parts, etc. It has acquired a business established in 1854, and is equipped adequately for the present, but expects to be in the market for equipment later.

The Russell Radio Corporation, Maryland Avenue and Oliver Street, Baltimore, has been organized with \$100,000 capital stock to manufacture radio equipment. It will need a small power press for drawing parts and is planning to have some die-cast parts made. Requirements in materials include annealed brass and aluminum 1/32 in. thick for press work. John A. LeMieux, president and treasurer of the company, is interested in a replacement engine company in whose factory the new company will operate.

St. Louis

St. Louis, April 20.

THE Mobile & Ohio Railroad, St. Louis, will buy the following motor-driven tools for its roundhouse at Murphysboro, Ill.: 50-ton bushing press; $3\frac{1}{4}$ x 32 in. flat turret lathe; 20 in. x 10 ft. heavy-duty engine lathe; ball-bearing floor grinder for wheels, 18 x 3 in.; planer, 36 x 36 in. x 12 ft.

Foundations are under way for a three-story and basement plant, 130 x 250 ft., for the Columbian Steel Tank Co., 1609 West Twelfth Street, Kansas City, Mo., to cost \$350,000 with machinery. A. M. Griffin is company engineer.

The Oklahoma Carriage Works, 800 West Grand Avenue, Oklahoma City, Okla., manufacturer of carriages, automobile bodies, etc., will erect a one-story plant, 100 x 140 ft., to cost approximately \$17,000. It will replace a structure recently damaged by fire.

The Wrought Iron Range Co., 5661 Natural Bridge Avenue, St. Louis, will lay foundations for an addition, 25 x 63 ft., estimated to cost \$17,000, with equipment.

Fire, April 13, destroyed a portion of the plant of the Anheuser-Busch Wagon & Truck Body Co., Ninth and Arsenal Streets, St. Louis, manufacturer of automobile truck bodies, with loss estimated at \$30,000 including equipment. Rebuilding plans are being considered.

The Board of Education, Augusta, Kan., has taken bids for the construction of a manual arts building, two stories, 48 x 77 ft., to cost \$40,000 including equipment. S. S. Voigt, Bittling Building, Wichita, Kan., is architect.

The Barnsdall Zinc Co., Joplin, Mo., has acquired the Brewster mill and properties, heretofore operated by the Chanute Spelter Co. The new owner is considering extensions and the installation of additional equipment.

The Skelly Oil Co., Tulsa, Okla., has work under way on a new gasoline refinery at Louann, Ark., estimated to cost \$500,000 with machinery.

The Kansas City Railways Co., 1500 Grand Avenue, Kansas City, Mo., has plans for an automobile service, repair and garage building for company motor buses, to cost about \$85,000.

The American Packing Co., 3845 Garfield Avenue, St. Louis, plans the installation of a refrigerating plant in connection with a new meat-packing and distributing works, 80 x 115 ft., to cost \$75,000. The Koerner Engineering Co., Syndicate Trust Building, is architect and engineer.

The Phillips Box Co., 20 East Center Street, Fayetteville, Ark., plans the installation of a power house in connection with a new factory, estimated to cost \$75,000. E. M. Ratcliff is secretary.

The City Ice Co., Kansas City, Mo., has arranged for the sale of a bond issue of \$1,750,000, a portion of the proceeds to be used for expansion. It is now operating seven ice-manufacturing plants.

The Pioneer Butter Wrapping Machine Co., 606 South Broadway, St. Louis, has been organized with active capital of \$31,500. Operations are now in the hands of the Victor Machine Works, St. Louis, but later a factory may be built. Distribution is handled through the J. G. Cherry Co., Cedar Rapids, Iowa. W. G. McKean is secretary.

The Southwest Power Co., McAlester, Okla., contemplates the installation of a 300 hp. oil engine at its Harrison, Ark., plant. A 90 mile transmission line between Harrison and Rogers is also under consideration. It will also install a 15-ton ice manufacturing plant. V. M. Kellogg is general superintendent.

Detroit

Detroit, April 20.

BIDS are being asked by the Holland Furnace Co., Holland, Mich., for the initial units of its branch plant at Bethlehem, Pa., one and two stories, 140 x 500 ft., to cost approximately \$350,000 with equipment. F. L. Lacoge is company engineer. A. H. Landwehr is treasurer and general manager.

The Ford Motor Co., Detroit, will begin work in June on a new assembly plant at Paris, France, for which property recently was acquired. It will have an initial output of about 300 cars per day.

The Fisher Body Corporation, General Motors Building, Detroit, will proceed with the erection of a one-story plant, 60 x 500 ft., on St. Antoine Street, to cost about \$50,000 including equipment. Contract for the structure was awarded recently to the Jerome Utley Co., Penobscot Building.

The Unique Brass Mfg. Co., 123 Military Avenue, Detroit, will proceed with the erection of an addition to

its plant, for which a general contract recently was let to the Everett Winters Co., Book Building.

The Cunningham Furnace & Machinery Co., London, Ont., manufacturer of electric heating specialties, is said to be arranging for the establishment of a branch plant at Port Huron, Mich. It is also contemplating the erection of a plant at Sarnia, Ont., and will likely remove its main works to this location.

Hugh T. Miller, Lightner Building, Detroit, architect, has plans under way for a two-story and basement automobile service, repair and garage building, 110 x 240 ft., at Mount Clemens, Mich., to cost \$70,000 with equipment.

The Muskegon Malleable Castings Co., Muskegon, Mich., is being organized to operate a local foundry for the production of automobile, railroad and other castings and it is expected to begin operations in May, giving employment to about 100 men. F. T. Kennedy and William B. Stout head the new company.

The Buhl-Verville Aircraft Co., 2730 Scotten Avenue, Detroit, has been organized with capital of \$150,000 to manufacture airplanes and parts. Principal ownership is in the hands of the Buhl Stamping Co., a portion of whose plant the new company has leased. Equipment is being installed and the company is in the market for materials and machinery. Several types of commercial planes are being designed and it expects to build planes for military and naval use as well. N. C. McMath is general manager.

Cleveland

CLEVELAND, April 20.

THE machine tool market is rather irregular. Some manufacturers report a small but steady gain in business but jobbers' sales are light. Buying is almost entirely of a fill-in character and largely for single tools. A lathe manufacturer sold 30 machines during the week, but these were made up of orders from 22 customers in various industries. Many prospective purchasers are holding off as long as possible and when they buy want quick delivery. The demand from the automotive industry continues light, although Cleveland distributors took several small orders from Detroit during the week. The Cleveland Punch & Shear Works Co. purchased a 26-in. x 30 ft. lathe and is in the market for a few thread milling and other machines. The Big Four Railroad has sent out an inquiry for several tools.

Leading motor manufacturers have announced a price reduction on continuous duty alternating current motors. Various reductions up to about 15 per cent have been made on small motors, but on the larger sizes 5 per cent is the maximum reduction.

The Perfeclite Co., East Fortieth Street, Cleveland, manufacturer of electrical fixtures, will build a two-story and basement factory and office building, 80 x 156 ft. Allen Sogg, 3030 Euclid Avenue, is the architect and engineer.

The Frankelite Co., 1560 Woodland Avenue, Cleveland, contemplates the erection of a factory to replace one recently damaged by fire. Allen Sogg, 3030 Euclid Avenue, is the architect.

The city of Leetonia, Ohio, has taken bids for a sewage treatment plant involving an expenditure of \$50,000. Two centrifugal pumps, motor operated valves and other equipment will be required. Barstow & McCurdy, 321 Ohio Building, Akron, Ohio, are the engineers.

The American Art Works Co., Coshocton, Ohio, has placed a contract with the Austin Co., Cleveland, for a four-story brick and concrete factory.

Lloyd Brothers, Xenia, Ohio, are low bidders for a sewage disposal plant and ejector station to be built by the Lake County Commissioners, Painesville, Ohio, at Mentor Headlands. Pumps and other equipment will be required.

The Board of Education, Luckey, Ohio, plans the installation of manual training equipment in a two-story and basement high school, 100 x 130 ft., to cost \$125,000, for which bids will soon be asked on a general contract. S. P. Stewart, Bowling Green, Ohio, is architect.

The Ohio Power Co., Canton, Ohio, will begin the construction of a new power plant at North Kenova, Ohio, to cost \$150,000 including equipment.

C. E. Taft & Son, 3160 West 106th Street, Cleveland, are in the market for a 30 to 100 hp. horizontal return tubular boiler.

Arthur L. Limbich, New Philadelphia, Ohio, and associates are planning the erection of a one-story brick plant,

70 x 180 ft., for which mechanical dryers, transmission and conveying and machine shop equipment will be required.

The Ridge Cast Products Co., Mineral Ridge, Ohio, manufacturer of cast iron equipment, has awarded a general contract for a one-story foundry addition, for which some equipment will be required.

The Toledo Timer Co., 3118 Monroe Street, Toledo, Ohio, recently was incorporated, having acquired a partnership which began production two months ago on automobile timers. Though full equipment has been installed, additions will be made at some future time. All machinery is of a special nature. L. C. Crabbs is vice-president and general manager.

Philadelphia

PHILADELPHIA, April 20.

BIDS are being asked by the Columbia Steel Equipment Co., Third Street, Philadelphia, manufacturer of safes, etc., for an addition, 25 x 60 ft. J. Frank Clarke, 23 South Sixteenth Street, is architect.

C. M. Roswell, Jefferson Building, Philadelphia, machinery dealer, has inquiries out for a 4-in. pump for dredging, direct-connected to gasoline engine.

Francis P. Canavan, 7032 Greenway Avenue, Philadelphia, architect, has plans for a one-story automobile service, repair and garage building, 46 x 230 ft., to cost \$70,000.

The Fairmount Foundries, Indiana and Fifteenth Streets, Philadelphia, have awarded a general contract to H. A. Hopple, Heed Building, for a foundry addition to cost \$16,000.

E. R. Taylor, 1416 Chestnut Street, Philadelphia, architect, has plans for a one and two-story automobile service, repair and garage building, 50 x 80 ft., to cost \$55,000 with equipment.

The stockholders of the Philadelphia Electric Co., Tenth and Chestnut Streets, Philadelphia, have approved plans for the proposed hydroelectric power project of the company at Conowingo, Md., with generating stations, substations and transmission system to involve an ultimate expenditure of \$50,000,000. Four 50,000-kw. generating units will be installed.

Edward H. Kotz, 868 Chambers Street, Trenton, N. J., has acquired property at Chambers and Tioga Streets and plans the erection of a factory for the production of electric motor equipment, including parts and repairs.

Manual training equipment will be installed in the proposed two-story and basement high school to be erected at Taylor, Pa., estimated to cost \$250,000, for which plans have been prepared by J. J. Howley, Traders' Bank Building, Scranton, Pa., architect.

The Landis Machine Tool Co., Waynesboro, Pa., manufacturer of threading machines and other machine tools, will rebuild the portion of its plant destroyed by fire April 10 with loss reported at \$100,000 including equipment.

The Sharples Centrifugal Co., West Chester, Pa., is being organized to take over the local plants of the Sharples Separator Co., which recently were secured by Philip T. Sharples, son of Philip M. Sharples, founder. The new company will increase the facilities, specializing in the manufacture of milk and oil separators and parts. The works at Philadelphia, heretofore operated by Philip T. Sharples, exclusively for the manufacture of oil-separating machines, will be removed to West Chester, where operations will be concentrated.

Fire, April 9, destroyed a portion of the grinding mill of the John O. Wagner Estate, Bushkill Creek, Easton, Pa., used for the production of pulverized soapstone and other products, with loss estimated at \$25,000 including machinery.

The Charles Warner Co., Wilmington, Del., manufacturer and producer of building commodities, will erect a new sand mining and distributing plant recently acquired at Tullytown, Pa., and install hoisting, conveying, screening and other machinery. The William Steele & Sons Co., 219 North Broad Street, Philadelphia, is architect and engineer.

The Board of Education, Harrisburg, Pa., plans the installation of manual training equipment in the proposed John Harris high school, estimated to cost \$1,000,000, for which bids will soon be asked on revised plans. Clayton J. Lappley and Henry Hornbostel, Harrisburg, are architects.

The Philadelphia Steel & Iron Co., 1008 Commercial Trust Building, Philadelphia, is in the market for billets

and bars, all sizes, also shaftings 4 in. in diameter and over.

A company has been formed by Benjamin Chalick, acquiring the former plant of the Wagner Process Co., Lansdale, Pa., manufacturer of stamped metal ware. Possession will be taken immediately and the factory will be remodeled and improved. Equipment will be installed to manufacture paper products.

Cincinnati

CINCINNATI, April 20.

BUSINESS continues quiet in the local machine tool market. Sales dropped off to some extent about April 1 and the past week has brought no improvement. The volume of production this month is below that of March, although some individual plants are keeping up to a fairly good level. Railroad business has been light. Several roads have lists out, which have not yet been closed. Automobile manufacturers are buying but little. Prospects for the immediate future point to a continuation of the present quiet condition.

Sales of planers have been holding up well. The Cincinnati Planer Co. booked an order from the General Electric Co. for a 30-in. planer and from the Collinwood high school, Cleveland, for a 22-in. planer. Inquiries are encouraging. Sales of lathes have decreased in the last 10 days. Practically every order coming in is for a single machine. Milling machines are in fair demand, although there has been a noticeable decline in sales and manufacture. Production of shapers is rather spotty. Several companies report fairly good business, but others state that April is turning out to be the quietest month they have experienced in a long time. The market for turret lathes is dull. Electric tool manufacturers report fair sales, although below the volume expected.

Charles Hesterberg, College Corner, Ohio, will soon establish a foundry for the production of castings and a shop for finishing brass fittings. Equipment valued at \$15,000 will be installed.

The S. Obermayer Co. has let contracts for installing equipment at its Cincinnati plant to extend activities in the manufacture of refractories. The new manufacturing unit will cost approximately \$25,000.

The Hub Builders' Supply & Coal Co., 675 Short Street, Columbus, Ohio, recently organized, is planning for the installation of loading, conveying and other handling equipment at its yards. R. J. Dienst is president, and Edward Kull, treasurer and general manager.

The Chattanooga Blowpipe & Roofing Co., 1040 McCallie Avenue, Chattanooga, Tenn., has acquired a new building on Highland Park Avenue, and will remove its plant to this location, where increased facilities will be installed.

The Schulte Brass Mfg. Co., 4426 Franklin Avenue, Norwood, Ohio, will proceed with the erection of a one-story addition, 30 x 250 ft., to cost \$30,000, for which a general contract has been let to John Singer, Reading, Ohio. Crowe & Schulte, Reading Road and McMillan Street, Cincinnati, are architects.

The Board of Education, Chattanooga, Tenn., will install a manual training department in its proposed three-story junior high school at East Chattanooga, to cost about \$115,000. The R. H. Hunt Co., James Building, is architect.

George W. Balinger, Mooresburg, Tenn., has inquiries out for a small duplex pump and accessory apparatus.

The National Foundry & Furnace Repair Co., Bolander Avenue and Baltimore & Ohio Railroad, Dayton, Ohio, having acquired the assets of the National Stove Repair Co., has been incorporated with \$50,000 capital stock to manufacture gray iron castings. It will also continue the stove company's lines. L. Richards is one of the officials.

The Safetygas Iron & Products Co., 510 Ludlow Street, Hamilton, Ohio, has been organized with \$15,000 capital to manufacture self-heating irons and like products. Parts are being made in Hamilton. F. D. Sheley is president.

The Portsmouth By-Products Coke Co., Portsmouth, Ohio, is to construct a motor benzol plant with a capacity of 4000 gal. a day for refining light oil.

The W. A. Kelley Motor Sales Co., Springfield, Ohio, has begun the construction of a new building, including repair shop, at Fountain Avenue and North Street, Springfield. Albert Tuttle is general manager.

Chicago

CHICAGO, April 20.

INDUSTRIAL buying of machine tools has dropped to a low level and consequently interest is centered more than ever on pending railroad lists. The Illinois Central is expected to place orders against its inquiry for the new Markham shops in this city within the next fortnight, as it is necessary to prepare the foundations for the tools while the buildings are going up. The Union Pacific System list will probably be bought by the first week in May. The Santa Fe has added two more inquiries to its list as follows: One motor-driven vertical high power drilling machine, Baker, or equivalent, to drill 4-in. hole, with 24-in. reach; one motor-driven 3-in. Landis, or equivalent, double head bolt cutter.

Official word regarding the shops of the Southern Railway System which were damaged by the tornado indicates that the Princeton, Ind., shops will require no new tools, although extensive repairs to the buildings will be undertaken. On the Southern subsidiary, the Mobile & Ohio, Murphysboro, Ill., it has been decided to rebuild a 10-stall roundhouse and a car repair shop. The question of reconstructing shops for repairs to locomotives and other heavy work that would require considerable new machine tool equipment has not yet been authorized. In fact, there is a possibility that these shops will not be rebuilt at Murphysboro, as the Mobile & Ohio has had under consideration for some time the concentration of shop facilities at Jackson, Tenn., where the first unit of extensive shop building has already been built. Among industrial purchases of the week, the largest was by the Williams Oil-O-Matic Heating Corporation, Bloomington, Ill., which closed for eight turret lathes and a planer type milling machine.

The Continental Scale Works, 2126 West Twenty-first Place, Chicago, has awarded contract for a one-story assembly plant, 142 x 150 ft., at 5713-23 South Claremont Avenue, to cost \$75,000.

The Illinois Elevator Co., 2710 West Lake Street, Chicago, recently chartered with \$25,000 capital stock, is an incorporation of a firm which has been established for 15 years under the ownership of Christian Nielsen. Heavy duty freight elevators, high speed elevators, together with full automatic push button passenger, freight elevators and dumb waiters are manufactured. The present plant is fully equipped and the company does not contemplate the immediate purchase of other equipment. Officers are Christian Nielsen, president; R. H. Fisher, vice-president; and Lette Christensen, secretary.

The Wilcox Co., Brainerd, Minn., has tentative plans for rebuilding the portion of its electric power plant destroyed by fire April 10, with loss estimated at \$50,000 including equipment.

The City Council, O'Neill, Neb., has tentative plans for the construction of a municipal hydroelectric generating plant on the Niobrara River, with capacity of about 4500 hp., to cost \$400,000 including transmission system.

The Delta Star Electric Co., 2433 Fulton Street, Chicago, manufacturer of high tension electrical equipment, has awarded a general contract to the Austin Co., 160 North La Salle Street, for a new plant, including power house, 30 x 50 ft., estimated to cost \$80,000. H. A. Young is president.

The City Council, Charleston, Ill., is planning to rebuild the pumping plant at the municipal waterworks, destroyed by fire April 9 with loss estimated at \$150,000, including oil-burning engines, motor-driven pumps and accessory equipment.

The Tri-State Telephone & Telegraph Co., Fifth and Cedar Streets, St. Paul, Minn., has awarded a general contract to the Paul Steenberg Construction Co., Builders' Exchange, for a three-story machine and repair shop, automobile service and garage, and storage and distributing works, 123 x 150 ft., to cost \$90,000. Mather & Fleischbein, Endicott Building, are architects.

The Cedar Rapids Engineering Co., 902 North Seventeenth Street, East, Cedar Rapids, Iowa, will build a two-story addition, 54 x 73 ft., for which a general contract has been let to O. F. Paulson, Granby Building.

The Illinois Glass Co., Alton, Ill., has awarded a general contract to the Morton C. Tuttle Co., Park Square Building, Boston, for the erection of its proposed addition, one-story, 130 x 1000 ft., with addition to power house, estimated to cost \$600,000 including machinery. The Jackson & Moreland Co., 31 St. James Avenue, Boston, is engineer.

E. A. Hughes, Hughes Electric Co., Bismarck, N. D., is reported in the market for a 1250 kw. steam turbine

unit, together with boilers, condensers and auxiliary equipment.

The International Harvester Co., purchasing department, 606 South Michigan Avenue, Chicago, is inquiring for a second-hand accumulator of about 750 cu. in. displacement for 1500-lb. hydraulic working pressure.

The Lewis Mfg. Co., 219 Orchard Street, Sharon, Pa., organized with \$75,000 capital, will manufacture automobile ventilators. Its plant is ready to begin operation with a capacity of 1000 ventilators per day, and it is in the market for braces and sheet metal equipment. David J. Lewis is secretary-treasurer.

The American Nickeloid Co., with general offices at Peru, Ill., has let contracts for a substantial addition to the Walnutport, Pa., factory. Main offices will remain at Peru.

Milwaukee

MILWAUKEE, April 20.

AN upturn in the activities of machine-tool users is reflected in greater inquiry, while sales are undergoing genuine improvement. The volume, however, remains limited and no large lot business is reported. The outlook is better, especially with respect to needs of automobile manufacturers, whose production schedules are mounting to meet an expectedly heavy spring demand. A number of local machine shops are expanding and several new shops are to be built, offering local dealers improved business.

The Smith Engineering Works, manufacturer of rock, ore and gravel handling equipment, 1154 Thirty-second Street, Milwaukee, has placed the order with the Harnischfeger Corporation, Milwaukee, for all of the crane equipment needed for the first unit of its new plant, 200 x 245 ft., at Lake Boulevard and Holton Street.

The Badger Mfg. Corporation, 156 Clinton Street, Milwaukee, producer of automobile bumpers and other automotive equipment, has taken a 15-year lease on the former plant of the Avery Co., Peoria, Ill., in West Allis, effective April 15, and will transfer its operation immediately. Considerable new equipment is being purchased for enlargement of capacity. Walter V. Isgrig is secretary-treasurer and general manager of the Badger company.

The Hoyer Engineering Co., 281 Grove Street, Milwaukee, has plans for a new machine shop and manufacturing plant to be erected at Thirty-ninth Avenue and Burnham Street, in West Milwaukee. The investment will be about \$45,000. Valentine Melonick is president.

Carl E. L. Lipman, Beloit, Wis., for many years engaged in the manufacture of refrigerating units for railroad cars, institutions, homes, etc., has been in negotiation with Milwaukee interests for a location for a new plant. It is reported on reliable authority that the works of the Standard Separator Co., Forty-fifth Avenue and Burnham Street, West Allis, probably will be leased. The project would call for the purchase of much new machinery.

W. C. Weeks, architect, Sheboygan, Wis., has been engaged by interests whose identity is withheld for the present, to design a two-story brick and concrete manufacturing building, 50 x 140 ft., with a wing, 40 x 70 ft., at Alabama and South Eleventh Streets. Contracts will be awarded about May 1.

The Racine, Wis., Common Council has engaged Alford, Burdick & Howson, consulting engineers, Chicago, to design a filtration plant estimated to cost \$315,000. Specifications are to be ready June 15 and contracts will be let by July 1. W. J. Armstrong is mayor.

The American Chest Co., Waukesha, Wis., sustained an estimated loss of \$25,000 by fire in its dry kilns on April 10. New and modern kilns will be constructed immediately. Clarence Keebler is general manager.

The New Device Mfg. Co., Green Bay, Wis., recently incorporated with a capital stock of \$25,000, will manufacture camp cook stoves and similar heating devices. Negotiations are under way for factory space. A full complement of equipment will be required. Incorporators are Gustaf A. Linstrom, William P. Hull and George Senn, all of Green Bay.

The Night-Eye Reflector Co., Waukesha, Wis., with a capital of \$25,000 preferred and 1000 no-par common shares, has been organized by Ralph W. Crary, Ben P. Wolf and A. J. Baird, all of Waukesha, to manufacture metal reflectors for automobile lamps, locomotive lights and similar purposes. It is planned to start operations about May 1.

Indiana

INDIANAPOLIS, April 20.

PLANs are under way by the Kokomo Steel & Wire Co., Kokomo, Ind., for the complete electrification of its mills, and all present steam-operated equipment will be replaced with electrical apparatus. It will also discontinue the operation of its individual power plant and will secure electric service from the Indiana Power Co. The complete project will cost approximately \$500,000. J. E. Frederick is general manager.

The Cooperative Glass Co., North Vernon, Ind., manufacturer of lamp chimneys and other blown glass products, is considering the erection of a new plant at Corydon, Ind., to cost approximately \$85,000. It will replace a factory at North Vernon recently destroyed by fire.

The Northern Indiana Gas & Electric Co., Hammond, Ind., will erect a two-story machine and repair shop, 60 x 60 ft.; also a two-story meter building, 25 x 90 ft. Buckley & Skidmore, Hammond, are architects.

Ellis Fish, Inc., Bedford, Ind., is having plans drawn for a two-story and basement automobile service, repair and garage building, 50 x 110 ft., to cost \$37,000 with equipment. L. L. Hill, Bedford, is architect.

The Southern Railway Co., Washington, D. C., has awarded a general contract to Dwight P. Robinson & Co., Inc., 125 East Forty-sixth Street, New York, for rebuilding its car and locomotive repair shops at Princeton, Ind., recently destroyed by a tornado.

The American Radiator Co., 40 West Fortieth Street, New York, has leased a two-story building at 909 North Senate Avenue, Indianapolis, 50 x 150 ft., for a factory branch and distributing plant.

The Monarch Industries, Inc., with headquarters at Elkhart, Ind., has been formed by merging five manufacturing companies, two in Chicago, two in Elkhart and one in Watertown, Wis. The companies in the merger are the Monarch Tractor Co., Watertown, Wis.; the Monarch Radio Corporation, Chicago; the Krasco Mfg. Co., manufacturer of phonograph motors, Chicago; the Foster Machine Co., manufacturer of turret lathes, and the Foster-Johnson Reamer Co., both of Elkhart, Ind. E. B. Cadwell, Chicago, is president of the new organization.

The General Equipment Co., manufacturer of railroad equipment, New York, has leased the buildings and tracks of the north yards of the Cincinnati, Indianapolis & Western Railroad at Brazil, Ind., and will install car building shops.

The Herbert E. Bucklen Corporation, Elkhart, Ind., organized with \$25,000 capital stock, will manufacture wind turbines. Its work will be done by contract.

Gulf States

BIRMINGHAM, April 20.

PLANs have been authorized by the Amarillo Refining Co., Amarillo, Tex., for extensions in its oil refinery to increase the output from 3000 to 10,000 bbl. per day. Improvements will also be made in the present unit. Reese S. Allen is president.

The Pinellas Ice & Cold Storage Co., St. Petersburg, Fla., Leon D. Lewis, 9 Third Street, N., general manager, recently organized, contemplates the erection of several ice-manufacturing and cold storage plants, estimated to cost \$800,000 with machinery. John S. Taylor is president.

The City Council, Fredericksburg, Tex., plans the installation of pumping machinery and accessory equipment in connection with a proposed waterworks estimated to cost \$120,000. Terrell Bartlett Engineers, Casasieu Street, San Antonio, Tex., are architects and engineers.

The Board of Water Commissioners, Dallas, Tex., has approved plans for the construction of a pumping plant to cost approximately \$70,000.

The Missouri-Pacific Railroad Co., St. Louis, has awarded contract for grading and other incidental work for its new shops at Alexandria, La., to the P. & R. Construction Co., Houston, Tex. The project will include engine house, machine shops, car repair shops, power house and other buildings, to cost \$400,000 with machinery.

W. M. Smith & Co., First Avenue, Birmingham, machinery dealers, have inquiries out for a mushroom type magnet for handling scrap; also for a marine railroad line to handle 500-ton lighters.

The Taylor-Alexander Co., Winter Haven, Fla., will install a series of pumping plants in connection with a proposed local irrigation system in the Peace Valley section, estimated to cost \$50,000.

Fire, April 12, destroyed a portion of the plant of the

Miller Brent Lumber Co., Poley, Ala., with loss estimated at \$200,000 including machinery. Plans for rebuilding are under consideration. John J. Fitzgerald heads the company.

A. W. Salfrahn, Abilene, Tex., is having plans drawn for a one-story automobile service, repair and garage building, 100 x 190 ft., at San Angelo, Tex., to cost \$65,000 with equipment. Oscar Ruffini, San Angelo, is architect.

The Southern Arsenic & Mineral Products Co., Forsyth Building, Atlanta, Ga., E. M. Hardin, secretary and engineer, will soon start work on the first unit of a new plant at Cragford, Ala., to cost \$150,000, of which approximately \$35,000 will be expended for mining and other machinery.

The Stephenson Brick Co., North Birmingham, is said to have acquired a tract of land at Cordova, Ala., and has plans under way for a new plant. A machine shop and power house will be included in the project which will cost \$200,000 with machinery. L. L. Stephenson is head.

The Oriental Oil Co., Oriental Station, Dallas, Tex., will rebuild the portion of its oil storage and distributing plant recently destroyed by fire, with loss estimated at \$75,000 including equipment.

The Martin-Parry Corporation, York, Pa., manufacturer of commercial automobile bodies, is contemplating the establishment of a new assembly plant and distributing works at Jacksonville, Fla., to cost more than \$80,000 with equipment.

The City Council, Donaldsonville, La., is arranging a bond issue of \$70,000, the proceeds to be used for extensions in the municipal electric light and power plant and waterworks, including the installation of machinery.

The United Gas Contracting Co., Broad and Arch Streets, Philadelphia, has been engaged to design and construct a steam-operated power plant for the Comal Power Co., New Braunfels, Tex., estimated to cost \$1,000,000 with machinery. The Comal company is affiliated with the San Antonio Public Service Co., San Antonio, Tex.

Pacific Coast

SAN FRANCISCO, April 15.

CONSTRUCTION will begin on a one-story plant at 950 Parker Street, Berkeley, Cal., for the Pacific Electric Clock Co., 86 Third Street, San Francisco, estimated to cost \$27,000, for which a general contract has been awarded to the Austin Co.

The Pacific Gas & Electric Co., 445 Sutter Street, San Francisco, has plans for a new automatic power substation at San Leandro, Cal., to cost approximately \$200,000 with equipment. It will also build similar substations in neighboring districts.

The White Truck Co., 1490 Market Street, San Francisco, will erect a one-story and basement assembly and parts plant at Eleventh and Mission Streets, for which a general contract has been let to George Wagner, Inc., 181 South Park Street. H. J. Brunner, Sharon Building, is engineer, in charge. The plant will cost about \$300,000 with equipment.

The Okanogan Light & Power Co., Okanogan, Wash., is planning for a hydroelectric generating station at Oroville, Wash., in connection with an irrigation project, estimated to cost \$350,000 with equipment. E. J. Broderick is engineer.

The Forest Grove-Hillsboro Ice Co., Hillsboro, Ore., will build a two-story ice-manufacturing plant to cost about \$50,000.

The Long Bell Lumber Co., Long and Bannister Streets, Kansas City, Mo., has plans under way for a new fir unit addition at Longview, Wash., with capacity of 600,000 ft. in 24 hr. The machinery installation will include steam-feed rigs, band saws, electric power equipment, etc., with estimated cost of the plant placed at \$750,000.

The Inland Power & Light Co., care of Stevens & Koon, Spaulding Building, Portland, Ore., engineers, has tendered a proposition to the City Council at Lewiston, Idaho, covering the construction of a municipal power plant with capacity of about 14,000 hp. It will replace the proposed power station contemplated by the city. A site has been selected on the Clearwater River.

The Pure Ice Co., Calexico, Cal., will proceed with the erection of a new plant at Seventh and Emerson Streets, estimated to cost \$75,000 including machinery. The Gay Engineering Corporation, Los Angeles, is engineer, in charge.

The General Sheet Metal Works, San Francisco, has removed its plant from 1444 Pine Street to 1529 Pine Street, where additional facilities will be provided.

The Supertile Machinery Corporation, Huntington Park, Los Angeles, will manufacture tile making machinery in its own shop at Huntington Park and probably in some large Eastern city. It is in the market for equipment, mainly punch presses, drill presses and lathes. The chief material required will be 12- and 14-gage sheet steel and various sizes of angles and channels. S. Flaw is one of the officials.

Canada

TORONTO, April 20.

WHILE there is little improvement in demand for machine tools, a good volume of small orders, mostly for replacement, is being received. Inquiries are chiefly for labor and time saving equipment and buyers are showing a stronger tendency to purchase up-to-date equipment and turn in obsolete tools. The automotive industry is a consistent customer and orders from this source furnish the bulk of new business.

The Capital Wire Cloth Mfg. Co., 24 Huiton Avenue, Ottawa, Ont., is building an addition and is interested in the purchase of machinery. J. W. Perazzo is secretary of the company.

The Dominion Road Machinery Co., Goderich, Ont., proposes to build an addition to cost \$25,000. T. H. Mitchell is manager.

The Dominion Electric Heating Co., 140 Anchors Street, Montreal, will build a manufacturing plant at Grand Mere, Que., 100 x 100 ft., to cost \$75,000.

The Fairchild Aerial Surveys of Canada, Ltd., Grand Mere, Que., is contemplating the erection of a manufacturing plant to cost \$150,000.

L. Killam Inverness Railway & Coal Co., 51 Sackville Street, Halifax, N. S., is asking for prices on two 250-kw. steam turbo-generator outfits, three-phase, 60 cycle.

The James Steele Co., Guelph, Ont., manufacturer of wire goods, etc., is considering the erection of a larger plant.

The Kent McClain Co., 181 Carlaw Avenue, Toronto, manufacturer of show cases, etc., is building an addition and will purchase some equipment.

Western Canada

The K. & L. Box & Lumber Co., Niles, Cal., which will establish a box factory at New Westminster, B. C., is ready to award contracts for a factory to cost \$100,000. Equipment will be purchased.

Webb & Gifford, New Westminster, B. C., manufacturers of sawmill machinery, etc., propose to establish a larger plant within the next three months.

Westinghouse Acceptance Corporation Is Organized

As an expansion of its service to electrical dealers and appliance manufacturers, the Westinghouse Electric & Mfg. Co. announces the formation of the Westinghouse Acceptance Corporation, a \$2,000,000 enterprise to assist buyers of Westinghouse products in the financing of time payment sales of their apparatus.

G. Brewer Griffin, recently manager of the Westinghouse automatic equipment department, will have active charge of the new company, as vice-president and general manager. The Acceptance Corporation was recently incorporated under the laws of Delaware. All stock so far issued has been subscribed for by the Westinghouse Electric & Mfg. Co.

Mr. Griffin is an active figure in the electrical industry, and has held executive offices in several important trade associations. He has been identified with the Westinghouse Co. for 25 years. His offices and operating forces are located at the East End Trust building, Pittsburgh. Branch offices later will be opened in other cities.

The complete personnel of the new company is as follows: E. M. Herr, chairman of the board, F. A. Merrick, president, G. Brewer Griffin, vice-president and general manager, H. F. Baetz, vice-president and treasurer, James C. Bennett, controller and secretary, Warren H. Jones, assistant secretary, S. H. Anderson and L. W. Lyons, assistant treasurers and secretaries, F. E. Craig, general auditor, W. B. Covil, Jr., and W. J. Patterson, assistant general auditors.

The board of directors includes Gen. Guy E. Tripp, E. M. Herr, F. A. Merrick, H. F. Baetz, C. Brewer Griffin, W. S. Rugg, J. J. Jackson, Jas. C. Bennett, and L. W. Lyons.

Trade Changes

The Linde Air Products Co., New York, manufacturer of oxygen for welding and cutting, has opened the following district sales offices: 716 First National 800 Line Building, Minneapolis, Minn., C. E. Donegan, sales manager; 409 Lincoln Life Building, Birmingham, Ala., W. A. K. Kopp, sales manager; 508 Exchange National Bank Building, Tulsa, Okla., G. D. Grubb, sales manager. The company has appointed J. W. Foster, a senior salesman in the Pittsburgh district, as district sales manager at Baltimore.

The Robert Grant Co., dealer in iron and steel billets, bars, sheets, plates and bamboo steel, Woolworth Building, New York, after May 1, will be located at Room 1009, 53 Park Place, New York.

The Chase Companies, Inc., including the Chase Metal Works, the Waterbury Mfg. Co. and the Chase Rolling Mills, will move their New York office, after May 1, to 138 Lafayette Street. Complete stocks of Chase brass rod, wire, sheet and tubing will be maintained at this address.

The Foote Brothers Gear & Machine Co., Chicago, has opened a New England sales office in charge of George Walsh, at 72 Ontario Street, Providence, R. I.

S. C. Dickerhoff, Jr., Inc., research engineer on technical publications, has opened an office in the Fulton Building, Pittsburgh, and the Hippodrome Building, Cleveland.

The Chicago district sales office of the Whiting Corporation has been moved from 945 Monadnock Block to 1502 Railway Exchange. R. S. Hammond is district manager.

The Harnischfeger Corporation (formerly Pawling & Harnischfeger Co.), Milwaukee, will move its Pittsburgh sales office from 57 Fidelity Building to 612 Farmers Bank Building, effective May 1.

The D. J. Kennedy Co. and the Bulger Block Coal Co. will have their main offices hereafter at the yard at 7535 Thomas Street, Pittsburgh.

T. J. Barry, Park Building, Pittsburgh, has been appointed district representative in that territory by the Pennsylvania Pump & Compressor Co., Easton, Pa. Products handled by Mr. Barry include air compressors, single and double stage type centrifugal pumps, air lift pumps and a portable unit known as the Penway pumper.

The Baker-Perkins Co., Inc., Saginaw, Mich., manufacturer of food machinery, announces the removal of its New York office to 250 Park Avenue, where the Werner & Pfleiderer Co., division of the company, will also have offices.

The Wagner Electric Corporation has moved its Pittsburgh service station to 4909 Liberty Avenue.

The Selson Engineering Co., manufacturers' agent, New York, has moved its London, England, headquarters to the Selson Building, 26-28 Charles Street, E. C. 1, after 50 years at the old address. The new quarters is said to afford one of the best machinery and tool display rooms in Great Britain.

The General Machinery & Supply Corporation, manufacturer and jobber in machinery, tools, and mill supplies, has moved into larger quarters in the same building at 136 Liberty Street, New York.

The Ludlum Steel Co., Watervliet, N. Y., has made application for listing 15,000 additional shares of common stock, proceeds to be turned into the company's treasury and 55 per cent to be used for additional working capital.

A meeting of creditors of the bankrupt Mitchell Motors Co., Inc., Racine, Wis., has been called for April 25 at 3 p. m., to consider the report of the trustee, Herbert F. Johnson. It is believed likely that a first and probably final dividend of 20 per cent can be declared, as the trustee has in hand \$905,403, which is available for distribution. Unsecured claims amounted to approximately \$4,500,000.

The Donner Steel Co. reports net income for the first quarter of \$321,851, after all expenses and reserves for taxes, etc. This compares with \$307,544 in the first quarter of 1924.

The annual report of the Canadian Westinghouse Co., Ltd., Hamilton, Ont., as of March 31, showed net profits for last year of \$1,139,349 and dividend payments of 10 per cent. From net profits the company paid dividends at the rate of 8 per cent and a special dividend of 2 per cent, amounting to \$743,290, which left \$396,079, carried to profit and loss account.

Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE, under the general headings of "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates		Per Lb.
Bars:		
Refined iron bars, base price.....	3.24c.	
Swedish charcoal iron bars, base.....	7.00c. to 7.25c.	
Soft steel bars, base price.....	3.24c.	
Hoops, base price.....	4.49c.	
Bands, base price.....	3.99c.	
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base.....	3.34c.	
Channels, angles and tees under 3 in. x ¼ in. base.....	3.24c.	
Steel plates, ¼ in. and heavier.....	3.34c.	

Merchant Steel		Per Lb.
Tire, 1½ x ½ in. and larger.....	3.30c.	
(Smooth finish, 1 to 2½ x ¼ in. and larger).....	3.65c.	
Toe-calk, ½ x ¾ in. and larger.....	4.20c.	
Cold-rolled strip, soft and quarter hard.....	7.00c.	
Open-hearth spring steel.....	4.50c. to 7.00c.	
Shafting and Screw Stock:		
Rounds.....	4.15c.	
Squares, flats and hex.....	4.65c.	
Standard tool steel, base price.....	15.00c.	
Extra tool steel.....	18.00c.	
Special tool steel.....	23.00c.	
High-speed steel, 18 per cent tungsten.....	70c.	

Sheets		Per Lb.
Blue Annealed		
No. 10.....	3.89c.	
No. 12.....	3.94c.	
No. 14.....	3.99c.	
No. 16.....	4.09c.	

Box Annealed—Black		Per Lb.
Soft Steel		Blued Stove
C. R. One Pass		Pipe Sheet
Per Lb.		Per Lb.
Nos. 18 to 20.....	4.30c. to 4.45c.	5.10c.
Nos. 22 and 24.....	4.45c. to 4.60c.	5.15c.
No. 26.....	4.50c. to 4.65c.	5.25c.
No. 28*.....	4.60c. to 4.75c.	5.25c.
No. 30.....	4.70c. to 4.95c.	5.25c.

Galvanized		Per Lb.
No. 14.....	4.70c. to 4.85c.	
No. 16.....	4.85c. to 5.00c.	
Nos. 18 and 20.....	5.00c. to 5.15c.	
Nos. 22 and 24.....	5.15c. to 5.30c.	
No. 26.....	5.30c. to 5.45c.	
No. 28*.....	5.60c. to 5.75c.	
No. 30.....	6.10c. to 6.25c.	

*No. 28 lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe			
Standard Weld		Wrought Iron	
Black	Galv.	Black	Galv.
½ in. Butt....	46 29	½ in. Butt....	4 +19
¾ in. Butt....	51 37	¾ in. Butt....	11 +9
1-3 in. Butt....	53 39	1-1½ in. Butt....	14 +6
2½-6 in. Lap.	48 35	2-in. Lap....	5 +14
7 & 8 in. Lap.	44 17	3-6 in. Lap....	11 +6
11&12 in. Lap	37 12	7-12 in. Lap....	3 +16

Bolts and Screws	
Machine bolts, cut thread, 40 and 10 per cent off list	
Carriage bolts, cut thread, 30 and 10 per cent off list	
Coach screws, 40 and 10 per cent off list	
Wood screws, flat head iron,	
72½, 25, 10 and 5 per cent off list	

Steel Wire		Per Lb.
BASE PRICE* ON NO. 9 GAGE AND COARSER		
Bright, basic.....	4.25c.	
Annealed soft.....	4.50c.	
Galvanized annealed.....	5.15c.	
Coppered basic.....	5.15c.	
Tinned soft Bessemer.....	6.15c.	

*Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire	
BASE PRICE	
High brass sheet.....	18½c. to 19½c.
High brass wire.....	18½c. to 19½c.
Brass rods.....	15½c. to 16½c.
Brass tube, brazed.....	26½c. to 27½c.
Brass tube, seamless.....	22¼c. to 23¼c.
Copper tube, seamless.....	23¼c. to 24¼c.

Copper Sheets	
Sheet copper, hot rolled, 20¼c. to 21¼c. per lb. base.	
Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.	

Tin Plates			
Bright Tin	Grade	Grade	Coke—14 x 20
	"AAA"	"A"	
	Charcoal	Charcoal	
	14x20	14x20	
IC..	\$11.25	\$8.85	80 lb...\$6.15
IX..	12.85	10.85	90 lb... 6.30
IXX..	14.40	12.55	100 lb... 6.45
IXXX..	15.75	13.85	IC.. 6.65
IXXXX..	17.00	15.05	IX.. 7.85
			IXX.. 9.00
			IXXX.. 10.35
			IXXXX.. 11.35

Terne Plates	
8 lb. coating, 14 x 20	
100 lb.	\$7.00 to \$8.00
IC.....	7.25 to 8.25
IX.....	8.25 to 8.75
Fire door stock.....	9.00 to 10.00

Tin	
Straits, pig.....	54c.
Bar.....	58c. to 61c.

Copper	
Lake ingot.....	16¼c.
Electrolytic.....	16½c.
Casting.....	16 c.

Spelter and Sheet Zinc	
Western spelter.....	9¼c.
Sheet zinc, No. 9 base, casks.....	12c. open 12¼c.

Lead and Solder*	
American pig lead.....	9½c. to 10c.
Bar lead.....	13c.
Solder, ½ and ¼ guaranteed.....	35½c.
No. 1 solder.....	33c.
Refined solder.....	27c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal	
Best grade, per lb.....	75c. to 90c.
Commercial grade, per lb.....	35c. to 50c.
Grade D, per lb.....	25c. to 35c.

Antimony	
Asiatic.....	18c. to 20c.

Aluminum	
No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb.....	36c.

Old Metals	
Business is very quiet and values are lower. Dealers' buying prices are as follows:	

	Cents
	Per Lb.
Copper, heavy crucible.....	11.50
Copper, heavy wire.....	11.25
Copper, light bottoms.....	11.25
Brass, heavy.....	9.25
Brass, light.....	6.75
Heavy machine composition.....	5.50
No. 1 yellow brass turnings.....	8.25
No. 1 red brass or composition turnings.....	7.75
Lead, heavy.....	7.75
Lead, tea.....	6.75
Zinc.....	5.00
Cast aluminum.....	4.00
Sheet aluminum.....	17.00